4.21 ENVIRONMENTAL SAFETY

1. SUMMARY

The potential environmental safety impacts relative to development of the Landmark Village project site include soil contamination attributable to past and present agricultural activities, on-site petroleum (i.e., oil) drilling and pipeline activities, and the disposal of on-site hazardous materials debris. Hazardous materials generally include petroleum products (including oil and gasoline), automotive fluids (antifreeze, hydraulic fluid), paint, cleaners (dry cleaning solvents, cleaning fluids), and pesticides from agricultural uses (at higher concentrations). Byproducts generated as a result of activities using hazardous materials (such as dry cleaning solvents, oil and gasoline) are considered hazardous waste. Contamination usually takes the form of a hazardous materials or waste spill in soil. Such contamination can penetrate soils into the groundwater table, resulting in the pollution of a local water supply. Commercial uses, particularly those using underground storage tanks (UST), are most common in causing such contamination.

Potential environmental safety impacts associated with the project site involve observed stained soil (including possible petroleum hydrocarbon contamination) near abandoned oil wells and pipelines, aboveground storage tanks (ASTs), and equipment storage areas. Unless mitigated, these potentially contaminated soils could result in significant impacts, especially if construction utilizing these soils, or contamination within these soils, was permitted without proper monitoring and testing. When remediated to local, state, and federal standards, including re-abandonment procedures for previously abandoned wells and pipelines, any potentially significant impacts relative to these conditions would be reduced to below a level of significance and, therefore, would not result in environmental safety hazards to Landmark Village residents, employees, and/or visitors, or to adjacent properties.

Another potential safety impact associated with the project site relates to the disposal of on-site debris, including asbestos-containing materials (ACMs). Unless appropriately disposed of, ACMs could result in safety hazards to project construction workers.

The presence of pesticides in the soils from historic agricultural operations, and the continuing use of pesticides in connection with ongoing agricultural activities, constitutes a potential impact, although the impact does not rise to a significant level. Soil sampling has been conducted to determine on-site concentrations of pesticides. The results showed no concentration of hazardous pesticides exceeding the residential or industrial use Preliminary Remediation Goals. Additionally, no Proposition 65 pesticides have been used on the Landmark Village project site. With respect to the future use of pesticides, due to the regulation of those pesticides used by agricultural activities occurring on Newhall Ranch, including the chemical and physical properties of those pesticides used, the requirement to use the pesticides in accordance with manufacturer specifications, and the mode of application of the pesticides, it is not expected that humans would be subject to either acute overexposure or chronic exposure to any of the pesticides used. Therefore, the on-site use of pesticides would not create a potential public health hazard, and would create no significant impact to the development property or its residents.

2. INTRODUCTION

a. Relationship of Project to Newhall Ranch Specific Plan Program EIR

Section 4.19 of the Newhall Ranch Specific Plan Program EIR examined the environmental safety issues relative to the Newhall Ranch Specific Plan, described the Specific Plan's potential environmental impacts, and proposed mitigation measures specific to the identified impacts. The Newhall Ranch Specific Plan EIR mitigation program was adopted by Los Angeles County (County) in findings and in the revised Mitigation Monitoring Plan for the Specific Plan. The Final Program EIR concluded that any potentially significant impacts relative to environmental safety that would result from development of the Specific Plan would be reduced to below a level of significance with implementation of the recommended mitigation measures.

This project-level EIR is tiering from the previously certified Newhall Ranch Specific Plan Program EIR. **Section 4.21** discusses, at the project-specific level, the extent of potentially hazardous conditions that exist on the Landmark Village project site, and the potential environmental impacts associated with those conditions. This section also identifies mitigation measures proposed to reduce the identified potentially significant impacts to below a level of significance. The mitigation measures include those measures from the Newhall Ranch Specific Plan Program EIR applicable to the Landmark Village project, in addition to any project-specific mitigation measures recommended by this EIR.

b. References for this EIR Section

This section is based on information contained in three Phase I Environmental Site Assessments specifically prepared for the proposed Landmark Village project, and these reports are included in Recirculated Draft EIR **Appendix 4.21**:

1. *Phase I Environmental Site Assessment Addendum Letter, Parcel Map No. 53108, Highway 126, Newhall Ranch, California*, BA Environmental, May 6, 2004 (see Recirculated Draft EIR **Appendix 4.21**);

2. *Phase I Environmental Site Assessment of River Village Tentative Tract Map No. 53108, Highway 126, Newhall Ranch, California*, BA Environmental, September 27, 2004 (see Recirculated Draft EIR **Appendix 4.21**);

3. *Phase I Environmental Site Assessment Addendum Letter of Proposed Water Tank Locations and Utility Corridor Easements Associated with the proposed River Village Development, Tentative Tract Map No. 53108, Highway 126, Newhall Ranch, California*, BA Environmental, September 28, 2004 (see Recirculated Draft EIR **Appendix 4.21**); and

4. *Third Party Review of Environmental Documents*, BA Environmental, August 30, 2006 (see Recirculated Draft EIR **Appendix 4.21**).

3. SUMMARY OF THE NEWHALL RANCH SPECIFIC PLAN PROGRAM EIR FINDINGS

The Newhall Ranch Specific Plan Final Program EIR identified certain potentially significant hazardous materials impacts that would result with implementation of the Specific Plan. Specifically, the Final Program EIR determined that potentially significant on-site impacts would occur with respect to past and present oil and natural gas production operations, existing Southern California Edison (SCE) electrical transmission lines, existing high-pressure natural gas lines, the future transport of hazardous waste along State Route 126 (SR-126), and the project's proximity to the Chiquita Canyon Landfill.

In response to the identified potentially significant impacts, the Newhall Ranch Specific Plan Program EIR identified nine feasible mitigation measures.[1] The Board of Supervisors found that adoption of the recommended mitigation measures would reduce the identified potentially significant effects to less than significant levels.

4. EXISTING CONDITIONS

a. Historic Uses, Current Uses and Current Physical Conditions

A brief description is presented below of the historic and current on-site uses of the Landmark Village tract map site, the Adobe Canyon borrow site, the Chiquito Canyon grading site, the utility corridor and the water tank location.

(1) Landmark Village Tract Map Site

The tract map site consists of an approximately 292-acre site, located south of Henry Mayo Drive (Highway 126), north of the Santa Clara River, east of the intersection of Henry Mayo Drive (SR-126) and Chiquito Canyon Road, and west of Castaic Creek.

Since prior to 1903 through the present, this site has been used primarily for agricultural production. Between approximately 1968 and 1994, an airstrip occupied the central portion of the site, approximately 200 feet south of SR-126. The airstrip was subsequently removed. The Indian Dunes Motorcycle Park also occupied the central portion of the tract map site from approximately 1972 until approximately 1994, when it was abandoned and subsequently removed. Since 1994, the development site has been used for agricultural purposes.

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1 See Mitigation Measures 4.19-1 through 4.19-9 in both the certified Newhall Ranch Specific Plan Program EIR and the adopted Mitigation Monitoring Plan for the Specific Plan (May 2003).

From prior to 1903 until prior to 1991, railroad tracks of the Southern Pacific Railroad ran along the northern boundary of the site, approximately 20 to 50 feet south of SR-126. The railroad tracks have been removed; however, some ballast materials still remain. Debris and trash piles were observed along the site of the former tracks.

Several small structures have been located throughout the Landmark Village tract map site from prior to 1947 through the present. The configurations and locations of these structures have changed several times since 1947. One of the building sites on the site is an equipment storage area, located approximately 50 feet south of the intersection of Wolcott Way and SR-126. The storage area contains various pieces of farm equipment and was used for storage purposes between 1952 and 1972, and since approximately 1994 to the present day.

Much of the land was graded and utilized for agriculture at the time the site was inspected. A portion of the property currently is producing crops, while other areas lay fallow. Numerous dirt roads traverse the site. Approximately four small buildings exist on the site and are used in activities related to on-site agricultural production. The site also is occupied by several irrigation wells.

A sheet metal building approximately 400 square feet in size is located in a fenced storage area on the tract map property (approximately 50 feet south of the intersection of Wolcott Way and SR-126). The building, which presently is used to store equipment and grain, was formerly an aircraft hangar, associated with the airstrip formerly located on the site. It is likely that this area was used to fuel and maintain the aircraft and may have been an area used to mix pesticides.

The eastern storage area consists of three buildings and a plastic-sheeting hothouse. The buildings are used for farm equipment storage and packaging, as well as agricultural chemical mixing. There are several small ASTs in this area, several 55-gallon drums and smaller 5-gallon buckets. None of these containers was labeled. Some staining was observed on the dirt in this storage area.

(2) Adobe Canyon Borrow Site

The Adobe Canyon borrow site is located within the Newhall Ranch Specific Plan, just south of the Santa Clara River, west of I-5, easterly and adjacent to Long Canyon. This borrow site is approximately 181 acres in size and, generally, is in an undeveloped state with the exception of a few access roads for oil well drill pads. Elevations range from approximately 925 feet in the vicinity of the Santa Clara River to approximately 1,350 feet at the natural ridgeline in the vicinity of the proposed water tank site. The borrow site is covered with natural grasses, chaparral and scattered oak trees. Dumped fill associated with past oil well drilling activities is present at various locations within the borrow site. A portion of the borrow site was used in the past for agricultural purposes; however, no pesticides were used in this area.

There is evidence of one former oil well, but no staining was observed in the area. Concrete and wood debris were found on the land. No hazardous substances, evidence of USTs, ASTs, or wastewater clarifiers were observed on the borrow site.

(3) Chiquito Canyon Grading Site

The Chiquito Canyon grading site is located primarily within the Newhall Ranch Specific Plan area, in the low-lying hills north of SR-126 and the Santa Clara River. The site consists of approximately 120 acres, covered with natural grasses and scattered chaparral with the exception of the alluvial area within Chiquito Canyon, which is commonly used for farming.

This site is generally undeveloped. The site shows evidence of past oil wells, including a few access roads for oil well drill pads. Two pads (one concrete, one dirt) are located on the site, both likely former oil exploration wells. Some staining was noted around one of these two pads. Dumped fill associated with past oil well drilling activities is present at the eastern portion of this site.

Sometime prior to 1976, related electrical transmission lines crossed from west to east across the Chiquito Canyon grading site. A dirt road crosses the tract map property and leads to an SCE transmission tower located on this grading site. An SCE easement traverses the northern portion of the grading site. An existing electrical tower within this easement is located at the top of one of the proposed, semicircular cut-slopes. A second power line easement is located at the southern portion of the grading site.

No hazardous substances, evidence of USTs, ASTs, or wastewater clarifiers, were observed on the Chiquito Canyon grading site.

(4) Utility Corridor

The utility corridor consists of a narrow strip of land (approximately 35 feet to 140 feet wide), extending approximately 0.8 mile west of San Martinez Grande Canyon Road along SR-126. To the east, the corridor extends along SR-126 to Henry Mayo Road and then along Henry Mayo Road to the Old Road/Interstate 5, and then south to Round Mountain.

Portions of the utility corridor site were occupied by Southern Pacific Railroad track easements from prior to 1903 until prior to 1991 when they were removed. Since that time, the former railroad track easement has been used as an access road. The access road is predominately dirt, with some gravel. Some debris and trash is located along portions of the road. There was no staining or distressed vegetation observed on any portion of the utility corridor. Portions of the utility easement ran beneath both Henry Mayo Road and The Old Road. Both roads have occupied their respective locations from prior to 1952 until present. Additionally, portions of the utility corridor have been occupied by

agricultural land from the early 1900s through the present day. The majority of the utility corridor is occupied by agricultural land, although portions of the utility corridor are occupied by vacant undeveloped land covered by native vegetation. Several structures (houses) are located in close vicinity to the utility corridor site.

Portions of the utility corridor are located in the southeast tip of the former Del Valle Oil and Gas Field, which is no longer producing oil. In addition, portions of the utility corridor cross through a part of the Castaic Junction Oil Field, which also is no longer producing oil. Several oil wells and three wash tanks are located in the immediate vicinity of the utility corridor in the Castaic Junction Oil Field. Two oil wells formerly were located approximately 100 feet southeast of SR-126, south of the utility corridor, while a third oil well was located approximately 600 feet to the southeast, also south of the utility corridor.

During the site visit, no hazardous substances, or evidence of USTs, ASTs, or wastewater clarifiers, were observed on the utility corridor site.

(5) Water Tank Sites

The proposed project includes the construction of a water tank to be located on a site northeast of the tract map property. From 1903 until the present, the northeastern water tank site, which is located within the Castaic Junction Oil Field, consisted of vacant land. This site consists of approximately 1.24 acres, about 1,300 feet from the northeast corner of the tract map site. The easement leading from the tank to the main easement in Chiquito Canyon traverses a small dirt road. An area of oil staining was observed just north of the easement. A pipeline easement, estimated to be approximately 10 feet wide, runs from the tank location, along the existing Wolcott Avenue and Franklin Parkway alignments, crossing SR-126 to the tract map site. Wolcott Avenue occupies a portion of the site, and an oil pipeline crosses Wolcott Avenue near its intersection with SR-126. On the site, low on the slopes of the hill, two pads were cut into the hillside. These pads may have been the locations of former oil production wells or exploratory wells. No staining was observed on the soil surface of either pad.

Storage would be required for the reclaimed water system, and 500,000 gallons of storage would be provided at the Newhall Ranch WRP as a fore bay for the pump station. Additional operational storage would be required and this storage would be provided by converting the 3.3 million gallon Round Mountain Tank, which is currently being used for potable water, to a reclaimed water reservoir. The reclaimed water would be delivered to this tank through the pipeline that is connected to the Valencia WRP. To utilize this tank, pipes would be extended southward in The Old Road and then follow the Santa Clarita trails system eastward to connect to the existing Round Mountain Tank.

The proposed water tank location is situated on undeveloped hilltops covered by native vegetation. Adjacent properties to the tank locations include vacant undeveloped land to the north, south, east and

west. Oil wells were formerly located in the site vicinity to the west, east and south. The easement for the site was observed to be located near a dirt access road running along an intermittent stream channel. Trash was formerly dumped along the road, including various bottles, cans, wood and metal debris was observed. No evidence of distressed vegetation or oil staining on the water line easement was observed on the water tank location. No hazardous substances, or evidence of USTs, ASTs or wastewater clarifiers, were observed on the site.

b. Oil Wells

(1) Landmark Village Tract Map Site

As shown in **Figure 4.21-1**, **Abandoned Oil Wells**, the eastern portion of the tract map property is located within the Castaic Junction Oil Field. Two former oil wells were located in that area, although each has been abandoned. Historical documents reveal another possible well in that area, although there is no confirmation of its existence. A third oil well was located on the central portion of the site, approximately 555 feet south of the intersection of SR-126 and Wolcott Way. This well also has been abandoned. The three former wells were recorded with the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR), and are listed as "abandoned and uncompleted." None of the oil wells was observed during the site inspection.

An additional five oil wells were drilled at various locations within 500 feet of the perimeter of the tract map property, as shown in **Figure 4.21-1**. Each of these five wells also has been abandoned.

Thus, all eight of the oil wells located either on the tract map site or in the immediate vicinity, have been abandoned. **Table 4.21-1**, **Oil Wells Located in Site Vicinity**, depicts the location of each well, the operator of the well, and the year it was abandoned.

Table 4.21-1
Oil Wells Located in Site Vicinity

Section	Township	Range	Operator	Well No.	Year Abandoned
15	4 North	17 West	Texaco E&P Inc.	'Newhall' 1	Unknown
14	4 North	17 West	Exxon Mobil Corp	'NHL&F' 50	1993
14	4 North	17 West	Exxon Mobil Corp	'NHL&F' 2	1993
14	4 North	17 West	Exxon Mobil Corp	'NHL&F' 9	1993
14	4 North	17 West	Exxon Mobil Corp	'NHL&F' 77	1993
23	4 North	17 West	Exxon Mobil Corp	'NHL&F' 54	1956
23	4 North	17 West	Exxon Mobil Corp	'NHL&F' 45	1955
23	4 North	17 West	Exxon Mobil Corp	'NHL&F' 1	1994

Source: Impact Sciences, Inc. 2005

(2) Adobe Canyon Borrow Site

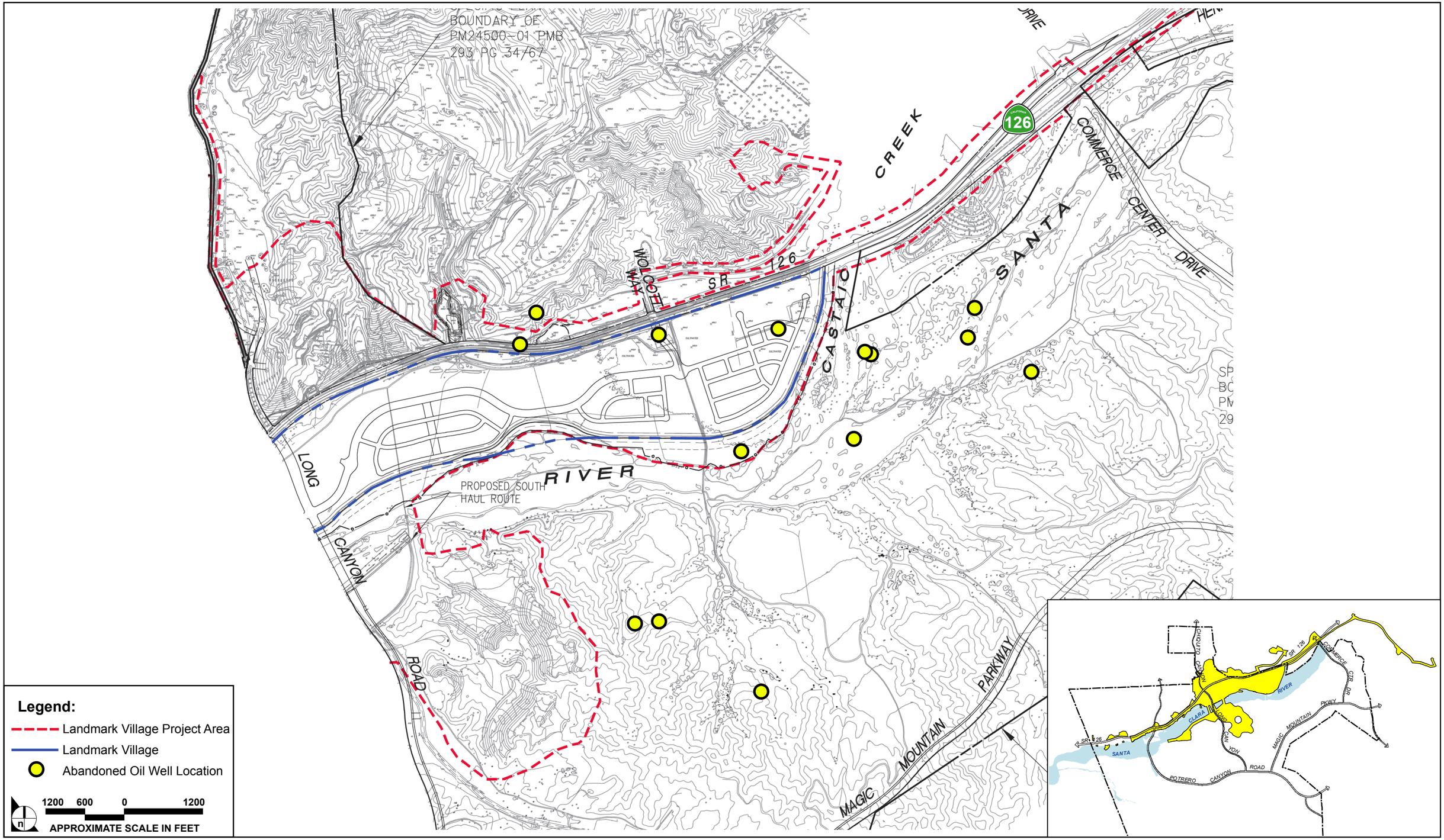
As shown in **Figure 4.21-1**, the Adobe Canyon borrow site is located in the Newhall-Potrero Oil Field. In 1941, two oil wells were located near the northern boundary of the borrow site. There is no evidence of production from either of these two wells. In 1989 and 1993, visual evidence of possible oil exploration activities were observed on the floor of a small valley/canyon located on the borrow site. No oil wells currently exist on the site.

During the site investigation, concrete and wood debris were observed scattered in the agricultural field on the floor of the small valley/canyon. The debris may be the indication of either a former structure or oil exploration activities. A flat roughly graded dirt pad was observed near an abandoned road running along the northern boundary of this borrow site. This is the location of what is believed to have been an exploratory oil well. At the eastern end of this small valley/canyon is a graded dirt pad with what appears to be a filled-in concrete vault. This is likely the location of a second former oil well. No oil staining was observed on this graded pad.

(3) Chiquito Canyon Grading Site

The Chiquito Canyon grading site is located on the eastern end of the Del Valle Oil and Gas Field. Sometime prior to 1947, what appear to be two oil wells were drilled on this site. Refer to **Figure 4.21-1** for their locations. No evidence of production was observed.

During the site investigation, a concrete pad was observed along the dirt road crossing the tract map property leading to the SCE transmission tower. This pad had a configuration similar to that used for an oil derrick and a cable tool-drilling rig. It is believed that this was the location of a former oil exploration well. There was no staining around this pad. Approximately 500 feet up a small access road was a second flat dirt pad, which may have been the location of a second exploratory oil well. Soil in this area was stained by what is believed to be crude oil.



SOURCE: PSOMAS – July 2005, B.A. Environmental – September 2004, Impact Sciences, Inc. – July 2005

FIGURE **4.21-1**

Abandoned Oil Wells

(4) Utility Corridor

The utility corridor runs through an area that was known to have been in the Del Valle Oil and Gas Field. Several concrete footings, possibly related to oil production, were observed in the immediate vicinity of the corridor. No pipelines were observed near the Del Valle Oil and Gas Field; however, since this site is located within a portion of an oil field, oil pipelines may exist beneath or adjacent to the utility corridor.

(5) Water Tank Site

As determined by the California DOGGR, no oil wells are located on the proposed water tank site.

c. Storage Tanks

(1) Above Ground Storage Tanks (ASTs)

The locations of former and existing ASTs are shown in **Figure 4.21-2, Locations of Above Ground Storage Tanks**. Sometime prior to 1952, three oil ASTs (located within a containment berm) were located near the eastern boundary of the tract map property. By 1968, these ASTs had been removed. From prior to 1952 until prior to 1968, a circular AST was located approximately 555 feet south of SR-126 and approximately 1,000 feet east of the intersection of Wolcott Way and SR-126. The purpose of this AST is unknown.

During the site investigation, two ASTs were observed mounted on trailers near the equipment storage area, approximately 50 feet south of the intersection of Wolcott Way and SR-126. These trailers appeared to be empty. Several empty and partially full 55-gallon steel drums were observed on site. These drums appeared to contain oil or petroleum products. Staining was observed on the soil throughout this area.

Several small ASTs were observed in the eastern storage area, as well as several 55-gallon drums and smaller five-gallon buckets. None of these containers was labeled. Some staining was observed on the dirt in the storage area.

Several ASTs containing liquid fertilizers and various other agricultural chemicals were observed in the eastern portion of the tract map property. Minor staining was observed on the dirt beneath these ASTs.

A small 100-gallon AST was observed on a trailer near the eastern property boundary, as was an approximate 500-gallon AST sitting on a wooden pallet, both associated with a diesel-powered pump. The 500-gallon AST was labeled, diesel fuel, likely for the pump. Staining was observed on the outside of the AST, as well as on the soil beneath the AST.

There is no evidence of ASTs on the Adobe Canyon borrow site or the Chiquito Canyon grading site, the water tank location or in the utility corridor.

(2) Underground Storage Tanks (USTs)

During the site investigation, there was evidence of USTs or wastewater clarifiers on the tract map site. The locations of former USTs are shown in **Figure 4.21-2**. According to the records of LACDPW, in 1989, PW Environmental removed one 1,000-gallon gasoline UST and one 1,000-gallon diesel UST, in the vicinity of the central farm equipment storage area south of Wolcott Way. One sample collected beneath the gasoline UST was reported to contain 96 milligrams per kilogram (mg/kg) of Total Petroleum Hydrocarbons as gasoline (TPH-g). LACDPW requested a description of sampling methods and manifests for the UST removal, which was provided by PW Environmental in August and September 1989.

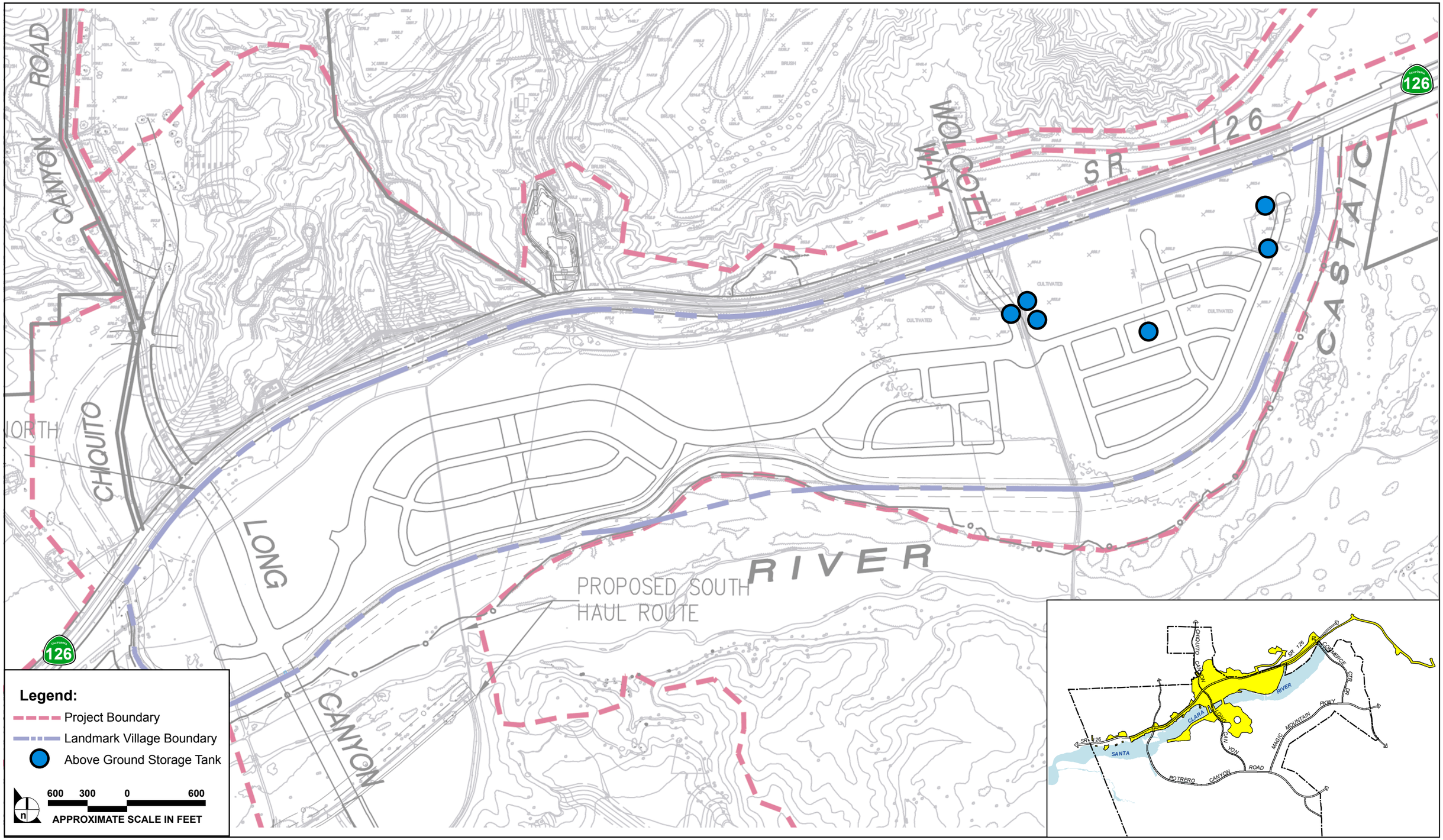
The State Water Resources Control Board (SWRCB) maintains an inventory of registered USTs. According to April 2003 records, there are no registered USTs on the tract map property; three UST sites are listed as within a 0.5-mile radius of the tract map property.[2]

No evidence of USTs or wastewater clarifiers was observed on the Adobe Canyon borrow site, the Chiquito Canyon grading site, the water tank location, or in the utility corridor.

d. Debris

A few piles of asphalt and concrete debris are scattered throughout the tract map property and along its northern and western boundaries. Other debris consisted of old piping (possibly oil), concrete pipes, the body of an old pickup truck, wood, household trash, and construction debris. The easement for the water tank site is located near dirt access road running along intermittent stream channels. Trash was discarded along this road, including various bottles, cans, wood and metal debris.

2 The EDR Radius Map with GeoCheck®, Inquiry No. 1108642.4s, January 8, 2004.



SOURCE: PSOMAS – July 2005, B.A. Environmental – September 2004, Impact Sciences, Inc. – July 2005

FIGURE **4.21-2**

Locations of Above Ground Storage Tanks

32-92•01/09

e. Visual Asbestos Survey

A visual survey of suspect friable and non-friable ACM was conducted. Asbestos was used for years in many building materials for its fireproofing and insulating properties. Friable materials are materials that can be crumbled, pulverized, or reduced to powder by hand pressure when dry. Non-friable materials are materials in which the fibers have been locked in by a bonding agent, coating, or binder, and may not release fibers during normal use and handling. Any activity that involves cutting, grinding, or drilling during demolition could release friable asbestos fibers unless proper precautions are taken. Inhalation of airborne fibers is the primary mode of asbestos entry into the body, making friable materials the greatest potential risk to health. Therefore, ACM debris is a hazardous material that may require appropriate disposal.

Asbestos is a known human carcinogen and there is no known threshold level of exposure at which adverse health effects are not anticipated (SCAQMD September 14, 1989). The U.S. Environmental Protection Agency (U.S. EPA) has identified asbestos as a hazardous air pollutant pursuant to Section 12 of the federal Clean Air Act. Further, the California Air Resources Board (CARB) has identified asbestos as a Toxic Air Contaminant (TAC) pursuant to California Health and Safety Code Section 39650, *et seq*. Asbestos also is regulated as a potential worker safety hazard by the Occupational Safety and Health Administration (OSHA). These rules and regulations prohibit emissions of asbestos from asbestos-related demolition or construction activities, require medical examinations and monitoring of employees engaged in activities that could disturb asbestos, specify precautions and safe work practices that must be followed to minimize the potential for release of asbestos fibers, and require notice to federal and local government agencies prior to beginning renovation or demolition that could disturb asbestos.

During the site reconnaissance, scattered suspect ACMs were observed. These suspects ACMs included pieces of transite pipe, construction material debris along the old railroad easement, and tar-like coating observed on metal pipe sections located in the western portion of the development site.

f. Pipelines

(1) Landmark Village Tract Map Site

Several pipelines, including natural gas and oil pipelines, cross the tract map site, as well as the utility corridor. A map identifying the location of these pipelines is provided in **Figure 4.21-3**, **Existing Pipelines**.

A Shell Oil Company petroleum pipeline runs along the northern property boundary, parallel to the old railroad easement. This pipeline likely contains crude oil.

Approximately 250 feet southeast of the intersection of Chiquito Canyon Road and SR-126 is a fenced enclosure. The enclosure is adjacent to the Shell Oil Company pipeline and a Shell Oil pipeline vault. The enclosure is the Del Valle Booster station, likely a booster station for an oil pipeline. Inside the enclosure was a pump, a 100-gallon AST (likely containing diesel fuel) and two electrical transformers. The pump and AST are located in a concrete containment.

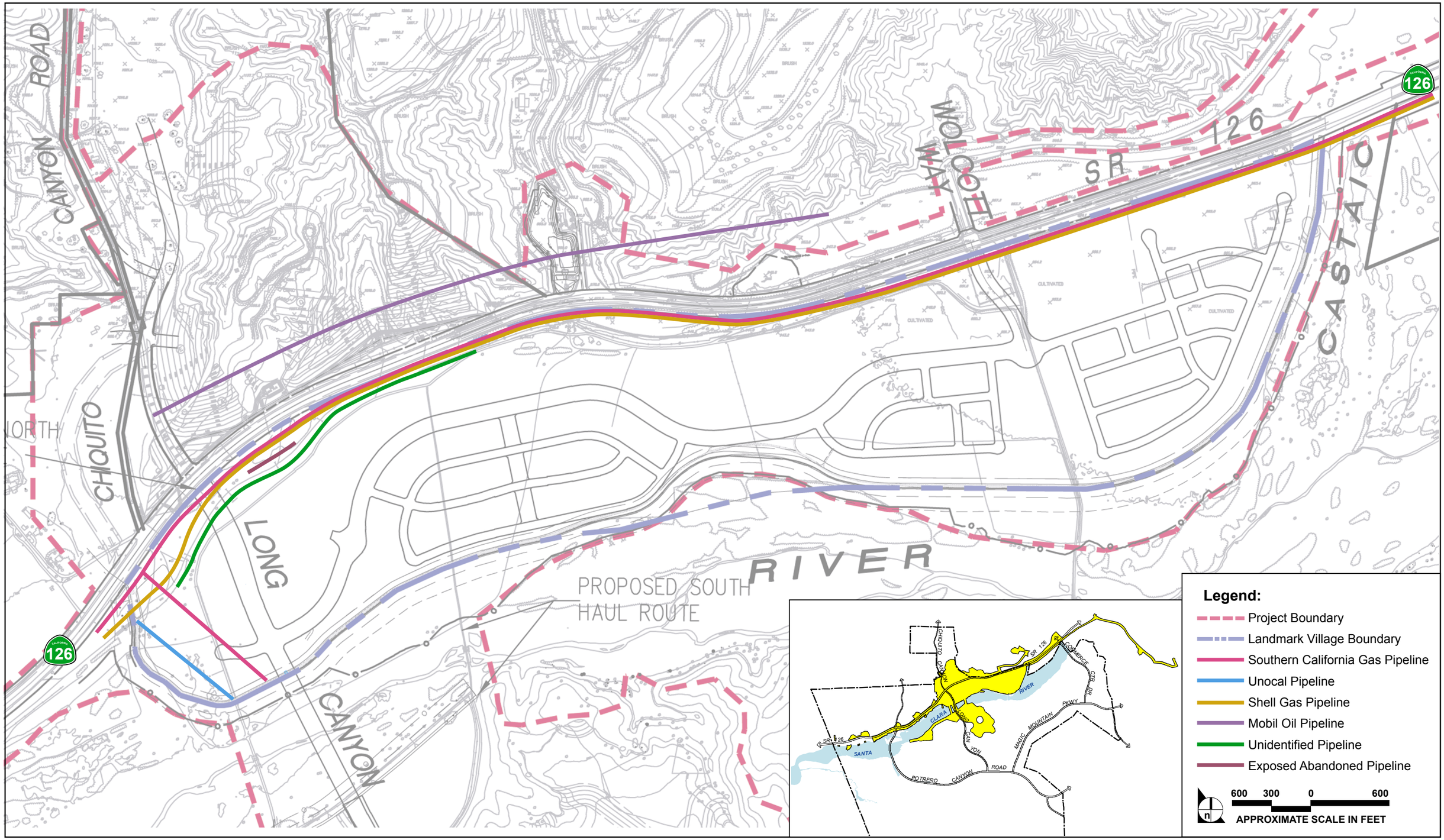
An unidentified pipeline runs along the southern edge of the old railroad easement. Where exposed, the pipeline is approximately 18 to 20 inches in diameter and coated with a tar-like substance to prevent corrosion. Two vents, similar to those used in oil pipelines, were observed associated with this pipeline. Damaged piping also was observed on the surface in the old railroad easement. It appeared that this pipeline had been removed, although it is uncertain whether it was replaced or completely removed. The pipeline is approximately 16 to 18 inches in diameter. Oil staining was observed in the areas where this pipeline was exposed.

A Unocal pipeline runs across the western end of the tract map property and likely carries oil. Reportedly, this pipeline is currently idle, and not being used.

(2) Utility Corridor

In addition to each of the several pipelines observed adjacent to the tract map property, all of which intersect or run parallel to the utility corridor, a number of additional pipelines were observed in the vicinity of the corridor.

A Shell Oil pipeline runs parallel along the northern side of the utility corridor (beneath what appeared to be the future rail easement). At a small stream crossing, the pipeline was exposed. The pipeline was comprised of steel construction and appeared to be approximately 8 inches in diameter. A second pipeline runs parallel along the southern side of the corridor. This pipeline appeared to no longer be in use, since a portion of the pipeline was exposed and cut. This pipeline appeared to be 10 to 12 inches in diameter. No staining was observed on the surface surrounding the exposed sections of pipe.



SOURCE: PSOMAS – July 2005, B.A. Environmental – September 2004, Impact Sciences, Inc. – July 2005

FIGURE **4.21-3**

Existing Pipelines

A Shell Oil vault or booster station is located along the north side of the utility corridor, near the eastern boundary. No staining was observed on the surface surrounding the vault/booster station. In addition, two old pipe sections were observed near this site. These sections are believed to have been former sections of oil pipelines.

An 8-inch Texaco oil pipeline, and two 6-inch abandoned Mobil Oil pipelines run down the center of SR-126, just north of the proposed utility corridor.

A 5-foot-wide General Petroleum Pipeline easement crosses the utility corridor property in the west and east. In addition, an 8-inch Texaco oil pipeline, and two 6-inch abandoned Mobil Oil pipelines run down the center of SR-126, just south of the corridor.

Based on Underground Services Alert markings on the road, underground pipelines are located between approximately 3 feet and 153 feet south of The Old Road and running parallel to The Old Road. These pipelines include a 6-inch Mobil Oil pipeline approximately 3 feet south of The Old Road, a 12-inch high pressure gas pipeline and a 10-inch Flexismer pipeline approximately 28.5 feet south of The Old Road, a 6-inch Mobil Oil pipeline approximately 42 feet south of The Old Road, an 8-inch Epsilon Oil pipeline approximately 137 feet south of The Old Road, and a 10-inch Mobil Oil pipeline approximately 153 feet south of The Old Road. There is also an 8-inch Shell Oil pipeline located south of the Old Road.

g. Soil Sampling for Pesticides and Herbicides

A pesticide is any substance used to kill crop pests, such as insects, rodents, weeds and fungi. They are inherently toxic and, used improperly, can have adverse effects on human health and the environment. The pesticides discussed in this section include insecticides, rodenticides, herbicides and fungicides, since each is used and stored on, and adjacent to, the proposed project site in connection with ongoing agricultural activities. None of the pesticides used on land owned by the applicant is hazardous enough to receive a Proposition 65 warning.

The pesticides that have been used and stored on the Newhall Ranch site are listed in **Table 4.21-2, Pesticides Used on Newhall Ranch Site – The Newhall Land and Farming Company – December 1994**. Between January 29, 2004 and February 5, 2004, 69 soil samples were collected from the tract map property. **Figure 4.21-4, Soil Sample Locations**, shows the soil sample locations. Field observations of the samples collected from the borings revealed no unusual odors or staining.

Table 4.21-2
Pesticides Used on Newhall Ranch Site
The Newhall Land and Farming Company
December 1994

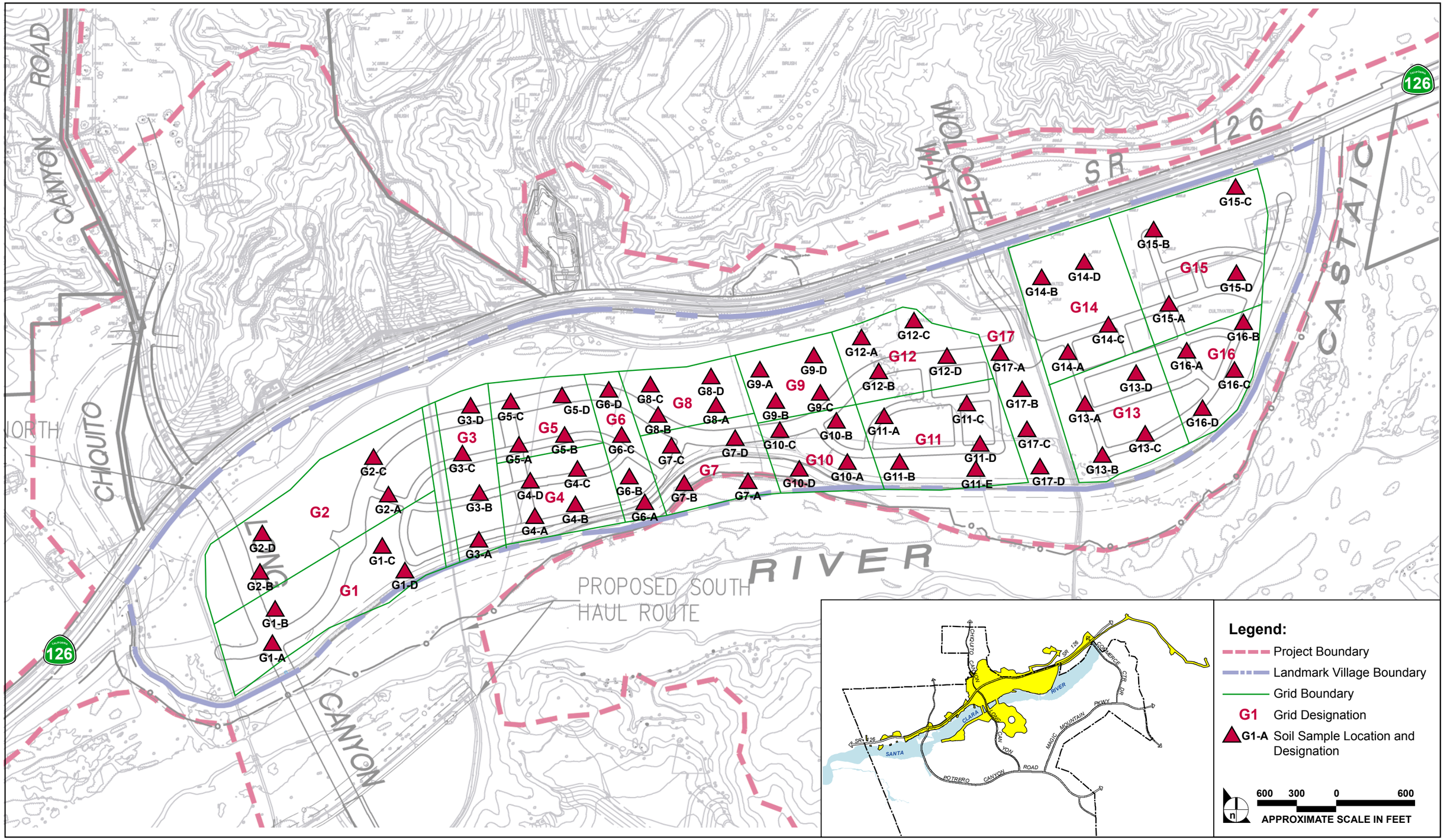
Insecticides	Rodenticides	Herbicides	Fungicides
Pounce	PCQ Squirrel Bait	Dacthal	Ridomil
Diazinon	Gopher Getter	Caparol	
Asana Insecticide		Roundup	
Lannate Insecticide		Simazine	
		Krovar/Diuron	
		Karmex/Diuron	

The soil sample analysis determined that the samples contained some concentrations of Organochlorine Pesticides (OCP) contamination in the form of alpha-chlordane, gamma-chlordane, 4,4-DDD, 4,4-DDE, 4,4-DDT, dieldrin, endosulfan I, endosulfan II, endosulfan sulfate, endrin, and heptachlor epoxide. The detected concentrations of OCPs were compared with the Public Remediation Goals (PRGs) set by the U.S. EPA for various compounds and metals. The comparison revealed that none of the OCPs detected at the tract map site exceeded the residential or industrial use PRGs for those compounds. Based on these results, there is a low potential for threat to human health or the environment. No detectable concentrations of Organophosphorous Pesticides (OPP) or Chlorinated Herbicides (CH) were contained in the samples analyzed.

h. Water Wells

(1) Landmark Village Tract Map Site

Three water wells are located in the western portion of the tract map property. Another well is located near the intersection of Wolcott Way and SR-126. Approximately six additional water wells are located along the eastern property boundary. See **Figure 4.21-5**, **Existing Water Well Locations**, for the location of these wells. All of these water wells are used to supply irrigation water to the agricultural crops on the tract map site. Several pumps associated with the water wells also are located on the site. Minor staining was observed beneath the pumps.



SOURCE: PSOMAS – July 2005, B.A. Environmental – September 2004, Impact Sciences, Inc. – July 2005

FIGURE **4.21-4**

Soil Sample Locations

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(2) Utility Corridor

Two water lines cross the utility corridor to the west and then run parallel along the northern side of the corridor.

i. Pits, Ponds, Lagoons, Septic Tanks and Cesspools

There are no pits, ponds, lagoons, septic tanks or cesspools currently existing on the Landmark Village project site. Based on a review of historical records, it is unlikely that these features existed on the site in the past.

j. Radon Gas Survey

Radon is a radioactive gas that occurs naturally in the environment, and cannot be seen, smelled or tasted. The human health effect associated with exposure to elevated levels of radon is an increased risk of developing lung cancer. The U.S. EPA and the U.S. Center for Disease Control are concerned about the increased risk of lung cancer developing in individuals exposed to above average levels of radon in their homes or offices. In order to address these concerns, the U.S. EPA conducted a radon survey and presented the results for various counties in the U.S. EPA Map of Radon Zones, 1993.

The U.S. EPA's Map of Radon Zones assigns each of the 3,141 counties in the United States to one of three zones. The zone designations were determined by assessing five factors that are known to be important indicators of radon potential: indoor radon measurements, geology, aerial radioactivity surveys, soil parameters and foundation types. Los Angeles County, the location of the project site, lies within Zone 2, which indicates a predicted average indoor radon screening level of greater than or equal to 2.0 picocuries per liter (pCi/l) and less than or equal to 4.0 pCi/l. Based on the results of the survey, the project site is located within an area with a radon screening level at or below the recommended U.S. EPA Action Level of 4.0 pCi/l.

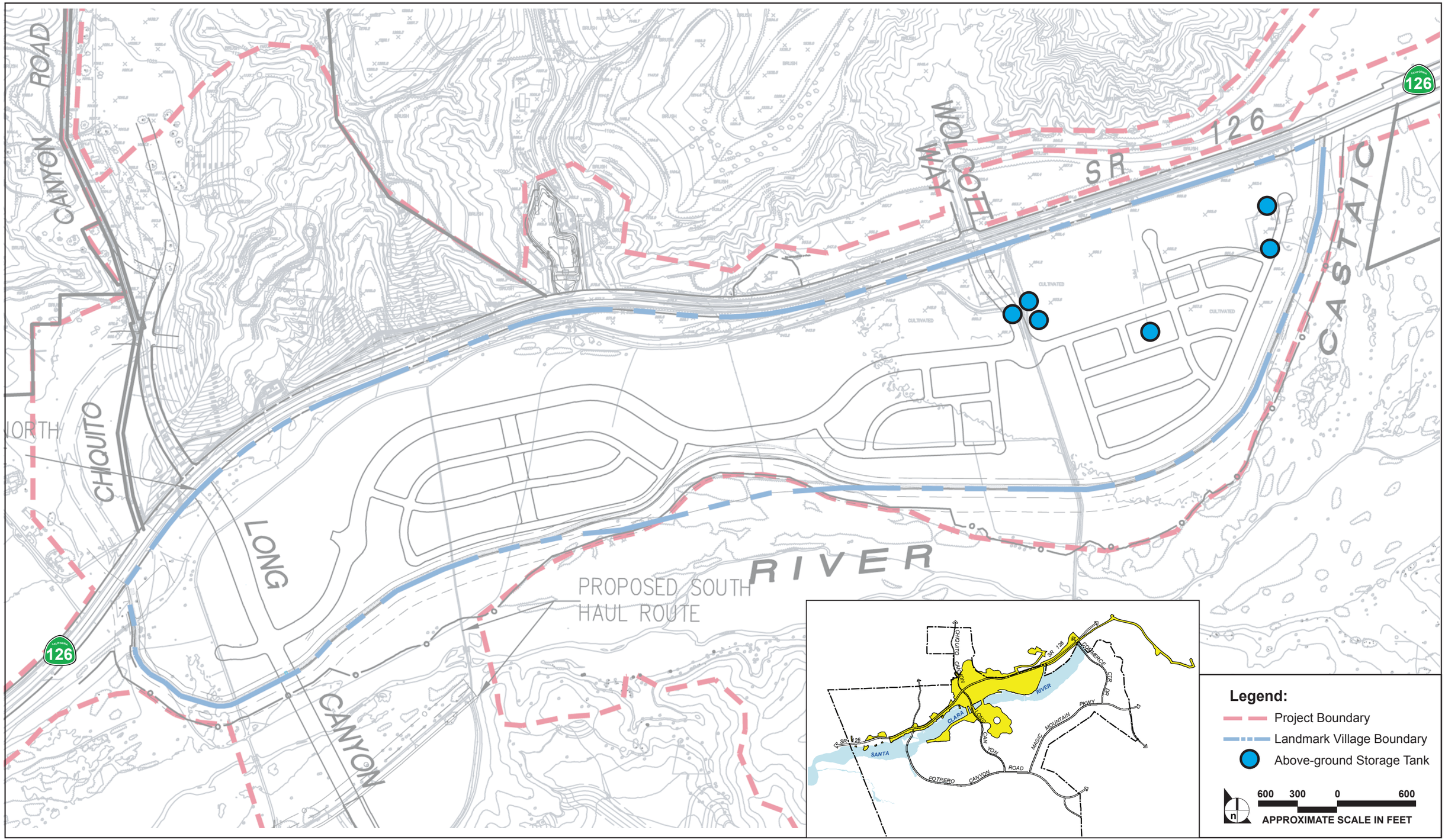
k. Existing Southern California Edison Transmission Lines

Electric service to the tract map property is provided by SCE. An electrical transmission tower is located in the Chiquito Canyon grading site within an existing SCE easement that traverses the northern portion of the site. The electrical tower within this easement is located at one of the proposed, semicircular cut-slopes. A second powerline easement is located at the southern portion of the grading site.

Because high voltage electrical transmission lines create electromagnetic fields (EMFs), and because of the ongoing debate over the potential health effects of EMFs, they are discussed in this section.

Electromagnetic fields are created as electrical charges (current), pass through conductors and are formed in association with alternating current (AC) electrical power, which serves most of our electrical needs. AC electrical power does not flow steadily in one direction, but alternates back and forth 60 times each second; therefore, it is referred to as 60-hertz (Hz) electrical power. Two kinds of fields associated with 60 Hz power are electrical fields that result from the strength of the charge, and magnetic fields that result from the motion of the charge. Taken together, these are referred to as electromagnetic fields. The strength of an electromagnetic field is affected by the distance from the source, the voltage of the object creating it, and the electrical/physical environment in which the conductor is placed.

In analyzing the impacts of EMFs, it is useful to look at the various EMF levels associated with typical household appliances as a benchmark example. The most common unit of measurement of the strength of magnetic fields is the gauss (G). Since the gauss is a large unit of measurement, the milligauss (mG), or 1/1,000 of a gauss, is used to report the strength of magnetic fields associated with most objects. For comparison purposes, the typical American home has a background magnetic field level (away from any appliances) ranging from 0.5 mG to 4 mG. **Table 4.21-3**, **Magnetic Field Levels for Common Household Appliances,** contains a listing of the magnetic field levels associated with various household appliances at varying distances.



SOURCE: PSOMAS – July 2005, B.A. Environmental – September 2004, Impact Sciences, Inc. – July 2005

FIGURE **4.21-5**

Existing Water Well Locations

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Table 4.21-3
Magnetic Field Levels for Common Household Appliances

Appliance	Distance From Source			
	6 Inches	1 Foot	2 Feet	4 Feet
Blender				
Lowest 30 mG1	5 mG	-	-	-
Median 70 mG	10 mG	2 mG	-	-
Highest	100 mG	20 mG	3 mG	-
Can Opener				
Lowest 500 mG	40 mG	3 mG	-	-
Median 600 mG	150 mG	20 mG	2 mG	-
Highest	1,500 mG	300 mG	30 mG	4 mG
Refrigerators				
Lowest	-	-	-	-
Median 2 mG	2 mG	1 mG	-	-
Highest	40 mG	20 mG	10 mG	10 mG
Color TV				
Lowest	-	-	-	-
Median	7 mG	2 mG	-	-
Highest		20 mG	8 mG	4 mG
Vacuum Cleaners				
Lowest 100 mG	20 mG	4 mG	-	-
Median 300 mG	60 mG	10 mG	1 mG	-
Highest	700 mG	200 mG	50 mG	10 mG

1 mG = milligauss
Note: The dash (-) indicates that the magnetic field measurement at this distance from the operating appliance could not be distinguished from background measurements taken before the appliance had been turned on.
Source: United States Environmental Protection Agency, Office of Radiation and Indoor Air, EMF In Your Environment, Magnetic Field Measurements of Everyday Electrical Devices, December 1992.

The magnetic fields associated with the large power lines are also a function of the height and distance of the transmission line from the receptor as well as the power loads, expressed as amperage or amps, on those lines and the amount of time that electricity is actually being transmitted over those lines. Typical magnetic field levels for electrical power lines are shown in **Table 4.21-4, Typical Magnetic Field Levels for Electrical Power Lines**. According to the U.S. EPA, the magnetic field of a typical 230 kV transmission line would probably be less than 120 mG at a distance of 20 feet, 15 mG at a distance of 100 feet, and less than 2 mG at a distance of 300 feet. From these examples, it is clear that, as the distance from the source of the magnetic or electric field increases, the level of exposure is reduced substantially.

Table 4.21-4
Typical Magnetic Field Levels for Electrical Power Lines

Types of Transmission Lines	Maximum Right-of-Way	Distance from Transmission Lines			
		50 Inches	100 Feet	200 Feet	300 Feet
115 Kilovolts (kV)					
Average Usage	30	7 mG	2 mG	0.4 mG	0.2 mG
Peak Usage	63	14 mG	4 mG	1.8 mG	0.8 mG
230 Kilovolts (kV)					
Average Usage	58	20 mG	7 mG	1.8 mG	0.8 mG
Peak Usage	118	40 mG	15 mG	3.6 mG	1.6 mG
500 Kilovolts (kV)					
Average Usage	87	29 mG	13 mG	3.2 mG	1.4 mG
Peak Usage	183	62 mG	27 mG	6.7 mG	3.0 mG

Source: United States Environmental Protection Agency, Office of Radiation and Indoor Air, EMF In Your Environment, Magnetic Field Measurements of Everyday Electrical Devices, December 1992.

Exposure to 60 Hz EMFs produces weak electrical currents inside the body by a process called induction. According to a Library of Congress Congressional Research Service Issue Brief, "… a growing amount of research indicates that these currents may alter the binding of molecules to receptors on the surface of the cell membrane [which] may disrupt membrane signaling events, and trigger abnormal biochemical reaction." Just what this finding means in terms of the effects of EMFs on our overall health has been the focus of a number of research efforts. Although many studies have been done on this topic to date, their findings are inconclusive. For example, the Journal of the American Medical Association states:

> *Some, but not all, epidemiological studies of health among populations exposed to ambient low-power frequency EMF show associations between exposure to EMF and health effects. However, because of the poor and inconsistent exposure assessment in these studies, the absence of an appropriate dose-response relationship, and absence of supporting laboratory evidence, any conclusion of human health risks at this time is premature.*

In addition, the British National Radiological Protection Board concludes:

> *The epidemiological findings that have been reviewed provide no firm evidence of the existence of a carcinogenic hazard from exposure of paternal gonads, the fetus, children, or adults to the extremely low frequency electromagnetic fields that might be associated with residence near major sources of electricity supply, the use of electrical appliances, or work in the electrical, electronic, and telecommunications industry.*

Because it is not possible to establish a clear relationship between EMF exposure and human health effects, there are no generally accepted criteria for determining acceptable or hazardous levels of electromagnetic fields.

The California Public Utilities Commission (CPUC), in its ongoing investigations of EMFs, has also noted that recent studies have failed to establish that an EMF health hazard actually exists, or that there is a clear cause-and-effect relationship between utility property or operations and public health or that some degree of exposure limitation, such as the 2 mG level considered by the CPUC at one time, is appropriate to protect public health. Thus, rather than establish new regulations, such as setbacks or exposure levels based on specific EMF levels, the CPUC has elected to continue research efforts regarding potential health hazards and examine ways to minimize EMF exposures along existing or future transmission line rights-of-way.

(1) Regulatory Controls

There are no federal regulations for restricting human exposure to power-line EMFs; however, seven states have established limits on electric field strengths at the edge of power-line rights-of-way, and two have established limits on magnetic field strength. In addition, some state utility commissions have issued their own EMF guidelines. There are no similar requirements in California; however, the California State Board of Education, in consultation with the State Department of Health Services (DHS) and electric power companies, has established the following limits for locating any part of a new school site property line near the edge of easements for high-voltage power transmission lines: 100 feet from the edge of an easement for a 50–133 (kilovolts) kV line; 150 feet from the edge of an easement for a 220–230 kV line; and 350 feet from the edge of an easement for a 500–550 kV line. These figures represent kV strengths of transmission lines used by utility companies in January 1993. Utility companies report that strengths for distribution lines are below 50 kV.[3] The County has not issued standards for EMF exposure or guidelines for new development in proximity to sources of EMFs and does not anticipate adopting such standards or guidelines in the near future.

l. Existing Southern California Gas Company High-Pressure Lines

A Southern California Gas (SCG) pipeline runs along the northern property boundary in the railroad easement, and crosses the western end of the tract map property. The pipeline is 18 to 20 inches in diameter and likely carries natural gas. Where visible, the pipeline is coated with a tar-like material to prevent corrosion. In addition, an Underground Services Alert marking along The Old Road indicated the presence of a 12-inch high-pressure gas pipeline.

CPUC General Order 112E, which is based upon the Federal Department of Transportation Guidelines contained in Part 192 of the Federal Code of Regulations, specifies a variety of design, construction,

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3 California Department of Education, School Facilities Planning Division, *School Site Section and Approval Guide*. Available at http://www.cde.ca.gov/ls/fa/sf/schoolsiteguide.asp. Website accessed July 2, 2004.

inspection and notification requirements. The CPUC conducts annual audits of pipeline operations to ensure compliance with these safety standards. In addition, the SCGC has a safety program which has reduced the risk of gas distribution fires by improving welds on the larger diameter (24- to 30-inch) pipelines and by replacing old distribution pipes with flexible plastic pipes. According to SCGC staff, high-pressure gas mains are common in developed areas throughout the country, and SCGC lines are inspected regularly and must comply with CPUC mandated safety requirements. However, as is the case anywhere, in the event that a gas main is ruptured, explosion and fire could result.

Because nearly 60 percent of the incidents on utility distribution pipelines are due to excavation damage, the SCG's safety program includes the operation of a call-before-you-dig or a utility-locator service for excavators. In 1998, with the support and encouragement of the natural gas industry, Congress enacted a law establishing a national "call before you dig" safety program, known as One-Call. The One-Call Program is aimed at developing a variety of best practice procedures to prevent excavation damage to underground facilities. In 2005, the Federal Communications Commission designated "811" as a nationwide three-digit phone number for contractors and others to call before conducting excavation activities.

In addition, SCG installs above-ground markers to indicate the location of buried gas lines. At a minimum, line markers are placed at each crossing of a public road, except in very urban areas where utility-locator services are available.

m. Transport of Hazardous Materials Along SR-126

The transport of hazardous materials throughout the State of California is regulated by the California Highway Patrol (CHP). The Hazardous Materials Section of the CHP, located in Sacramento, licenses companies that haul hazardous materials. Three categories of hazardous materials are regulated by the CHP in that their transport is limited to designated routes and stopping places. These categories include explosives, inhalation hazard materials (i.e., materials that are poisonous if inhaled), and radioactive materials. Title 13, California Code of Regulations, Division 2, Chapter 6, Articles 1., 2.5 and 2.7 identify SR-126 as a designated route for the transport of explosive and inhalation materials, but not for radioactive materials. Therefore, it is very likely that explosives and inhalation hazard materials are transported on SR-126 and that, although unlikely, there is a potential for accidental explosions or releases of hazardous gases to occur.

In the event of a spill, or release of hazardous gases, the Los Angeles County Environmental Health Division and/or the Los Angeles County Fire Department Hazardous Material Unit (located at Fire Station 76, 27223 Henry Mayo Drive in Valencia, which is the closest fire station to the site with a Hazardous Material Unit), would provide response coordination, spill identification, and clean-up

supervision. Local law enforcement and fire authorities would provide traffic control and spill containment. County response personnel would be coordinated with appropriate state and, if necessary, federal response agencies.

n. Dam Inundation Area

The Castaic and Forebay Reservoirs are contained by earthen dams that were constructed on Castaic Creek in 1974. Based on the California Department of Water Resources Dam Inundation Map for Castaic Dam, the Landmark Village project site is currently located within the dam inundation area. It is difficult if not impossible to estimate the actual risk of dam failure, which is dependent upon a number of factors, such as the structural integrity of the dam, the probability that the reservoir would be filled to peak capacity, the likelihood of catastrophic earthquake, and many other unknown variables, such as the long-term threat of underlying geologic hazards.[4] The dam inundation area was delineated in 1975 in compliance with Section 8589.5 of the California Government Code. It is based on an assumed catastrophic failure of the dam during peak storage capacity and encompasses all probable routes that a flood might follow after exiting the dam or canyon opening. Division 3 of the California Water Code places the responsibility for dam safety under the jurisdiction of the California Department of Water Resources, Division of Safety of Dams. This agency is responsible for regular inspection and maintenance of dams under state jurisdiction. According to the Chief of this Division, development is permitted within a dam inundation area.[5]

Most failures of earthen dams are caused by foundation failures, inadequate spillways, and poor construction and site selection; less than 1 percent of the 308 recorded worldwide dam failures between 1766 and 1944 are attributable to earthquakes.[6] The embankments of the Castaic Lake Dam, which are the components of a dam most likely to fail during an earthquake, are composed of strong and densely compacted materials. According to the Los Angeles County Safety Element, "most engineered, mechanically compacted dam embankments or fills of earth or rock materials have performed well under seismic shaking."[7] The dams held up well during the Northridge Earthquake (magnitude 6.8 on the Richter Scale) with no signs of damage reported, and are likely to hold up well during other earthquakes of similar, if not greater magnitude.[8] According to the California Department of Water Resources, the

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4 County of Los Angeles Department of Regional Planning, Safety Element in the County of Los Angeles General Plan (Los Angeles, California: December 1990), p. 3.85.

5 Interview with Vernon Persson, Chief of the Division of Safety of Dams, Department of Water Resources, Sacramento, California, 8 March 1995.

6 County of Los Angeles Department of Regional Planning, Safety Element in the County of Los Angeles General Plan (Los Angeles, California: December 1990), p. 3.85.

7 *Ibid.*

8 Interview with Vernon Persson, Chief of the Division of Safety of Dams, Department of Water Resources, Sacramento, California, 14 April 1995.

Castaic Dam is designed to resist both the maximum credible earthquake and the probable maximum precipitation flood. The dam's spillway has several times the capacity of creeks flow of record, and the dam's freeboard can easily handle any potential landslide, which might occur into the lake. Additionally, the dam provides incidental control benefits downstream. Given the continuous efforts of the Division of Safety of Dams of the Department of Water Resources to inspect and maintain the structural integrity of the state's dams, the Landmark Village project is not likely to expose people to potential health hazards associated with dam failure. Based upon this information, impacts relative to dam inundation would be less than significant. No mitigation is required or recommended.

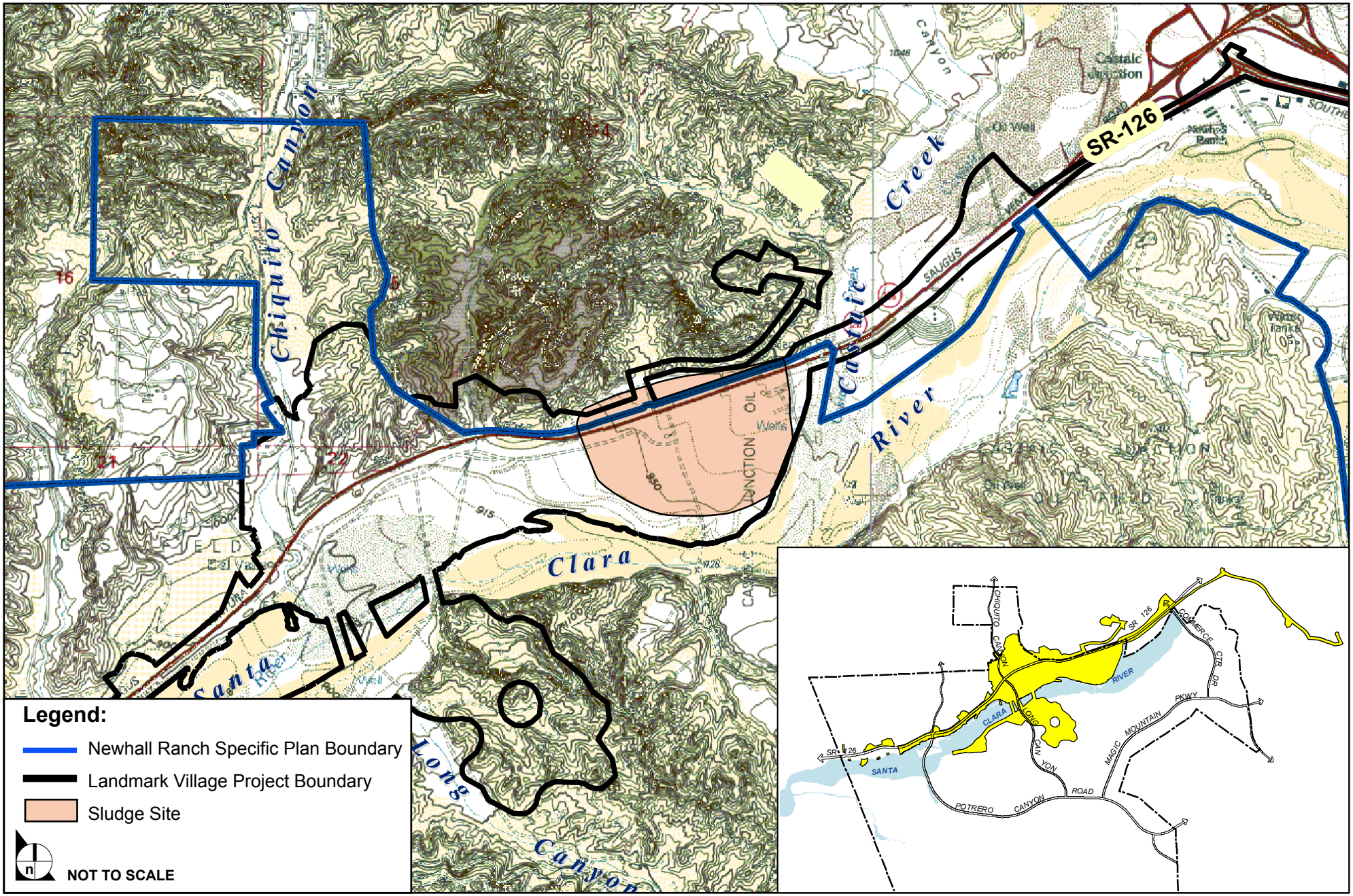
o. Sludge Disposal Site

Approximately 60 acres of land on the project site was historically used as a municipal sewage sludge disposal site pursuant to a contract between the Newhall Land & Farming Company and the Los Angeles County Sanitation Districts. This activity was permitted under the Regional Water Quality Control Board, Los Angeles Region (LARWQCB), Waste Discharge Requirements Order No. 75-14 issued on March 10, 1975. The material deposited consisted of anaerobically digested sewage sludge (biosolids) from the Saugus and Valencia Water Reclamation Plants. The County Sanitation Districts of Los Angeles County issued a report titled: Districts 26/32 Sludge Disposal Study, Progress Report No. 1, September 1977 which stated that sludge on the Landmark Village site was used for several years but is not now (1977) in use.

> *It was commonly called the Forneris site after the individual who farmed it. In the fall of 1973, Newhall Land and Farming, which owns the site, requested the Sanitation Districts to cease operation on the Forneris site when odor complaints were received from nearby commercial enterprises. Operations were transferred to Site 1 [Hasley Canyon].*

The limits of the disposal site are depicted in **Figure 4.21-6, Sludge Site**. As part of the planning process for the proposed project, a study was undertaken to assess the presence, or lack thereof, of any potential contamination associated with the use of this land as a municipal sewage sludge disposal site. According to the BA Environmental, Third-Party Review of Environmental Documents, August 30, 2006 (Recirculated Draft EIR **Appendix 4.21**),

> *The eastern 25% of the proposed Landmark Village site was used in the 1960's and early 1970's for the disposal of treated municipal sewage sludge. Since the cessation of the disposal operations in 1973, the disposal site has been used for agricultural cropland. These agricultural activities would have included frequent disking and turning of the soils. This frequent turning of the soils, would have aerated the shallow soils beneath the subject site. Based on the length of time since the last disposal event and the frequent turning of the soils in the former disposal site #6, it is highly unlikely that any pathogens remain in the soil from the former sludge disposal activities.*



SOURCE: Impact Sciences, Inc. – January 2009

FIGURE **4.21-6**

Sludge Site

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M:\GIS_Data\032-092_Landmark_Village\MXD\FIG4.21-6_LMV_Sludge_0128_09.mxd

Furthermore, the third-party review concludes the following:

> *…due to the frequent turning of the soil, the usage of the land for agricultural crops and the natural leaching of the soils by rainwater percolation, it is highly unlikely that any of the original concentrations of nitrates, ammonia, phosphates or heavy metals in the sludges deposited in the sol due to sludge disposal remain.*

5. SURROUNDING USES

The following is a brief description of the existing uses surrounding the tract map property, the Adobe Canyon borrow site, the Chiquito Canyon grading site, utility corridor and water tank site.

a. Landmark Village Tract Map Site

Land uses adjacent to the tract map site include agricultural and undeveloped land to the west, Castaic Creek to the east, the Santa Clara River to the south, and SR-126 and Chiquita Canyon Landfill to the north. Adjacent land within a 0.25-mile radius is undeveloped or agricultural, with oil fields to the northwest and south.

b. Adobe Canyon Borrow Site

Adjacent properties to the Adobe Canyon borrow site include agricultural land to the west, and undeveloped land to the north, south and east. An oil field lies south of this site.

c. Chiquito Canyon Grading Site

Adjacent properties to the Chiquito Canyon grading site include undeveloped land to the north, Chiquito Canyon Road and an oilfield to the west, undeveloped land and the Chiquita Canyon Landfill to the east, and SR-126 followed to the south.

d. Utility Corridor

The utility corridor is adjacent to the tract map property and intersects SR-126 as well as other major roads in the area. Vacant and agricultural lands mostly surround the corridor. Portions of the corridor are adjacent to the Del Valle Oil and Gas Field. Travel Village is located south of several portions of the corridor. In the vicinity of Henry Mayo Road and The Old Road, various commercial businesses surround the corridor, including two gas stations.

e. Water Tank Site

Properties adjacent to the northeastern water tank location include primarily vacant undeveloped parcels in all directions. An existing water tank is located on the hill to the southwest of the proposed new water tank site. Commercial/industrial development is located in the valley to the north-northeast.

6. SITES INCLUDED IN GOVERNMENT RECORDS REVIEW

Regulatory compliance with Government Code Section 65962.5 requires a review of state and federal government databases for the presence of hazardous wastes or hazardous materials, on site or at neighboring sites, which may present certain liabilities. In connection with preparation of Environmental Site Assessments (ESAs), a review of applicable government databases was conducted by Environmental Data Resources, Inc. (EDR).[9] The review, which searches the databases for properties located within a certain radii of the target property, provides the most recent information regarding hazardous materials sites within the vicinity of a proposed project, including the proposed project.

a. Tract Map Site, Adobe Canyon Borrow Site, and Chiquito Canyon Grading Site

The tract map property, the Adobe Canyon borrow site, and the Chiquito Canyon grading site are not listed on any of the searched databases. Nor have there been any reported releases of hazardous substances on the tract map property or the Adobe Canyon borrow site and the Chiquito Canyon grading site.[10]

Five properties within proximity to the tract map property were listed as a potential environmental concern. A description of each of the sites is provided below. All five of these properties have a low potential for environmental impact.

(1) Chiquita Canyon Landfill

The property closest to the tract map site, across SR-126 to the north, at about a 500-foot distance, is the Chiquita Canyon Landfill boundary, owned by Republic Services Systems, Inc., and located at 29201 Henry Mayo Drive. The Chiquita Canyon Landfill is a Class III (non-hazardous) landfill. This landfill is

9 The EDR Radius Map with GeoCheck®, Inquiry No. 1108642.4s, January 8, 2004.

10 According to the Emergency Response Notification System (ERNS) national database used to collect information on reported releases of oil and hazardous substances.

permitted to accept 30,000 tons (42,860 cubic yards) per week.[11] Currently, 257 acres are permitted for actual disposal of waste. The remainder of the site is for sedimentation ponds and future expansions. In 2003, the landfill accepted an average daily waste disposal of 5,000 tons (7,196 cubic yards).[12] The Conditional Use Permit for operation of the landfill expires in 2019.[13] Please refer to **Section 4.12, Solid Waste Services**, for more information regarding solid waste disposal services.

The landfill is listed on several databases, although it is reported as having had no violations of applicable hazardous waste laws. The environmental concerns associated with this property, including odors, leachate, methane gas migration, water quality, dust generation, windblown refuse, vectors, birds, and truck traffic are mitigated through landfill design, construction and maintenance in accordance with federal, state, and local regulations. Specific design features include surface water controls, groundwater protection barriers, and landfill gas collection systems.

The site is owned and operated by Republic Services of California I, LLC (Republic Services). Since the facility was acquired by Republic Services in 1999, it has been upgraded with: (1) a new landfill gas management system; (2) an upgraded leachate management system; (3) improved internal roadways; and (4) new operating procedures. Additionally, Republic Services has improved the efficiency of the operation by purchasing two trailer tippers to speed the unloading of waste material at the active portion of the landfill.

New or expanded landfills must be lined with a composite liner (clay and plastic membrane) or other approved liner, in accordance with California Code of Regulations, title 27, not only to prevent water from entering the refuse area of the landfill, but also to prevent water and other materials from entering ground or surface waters. In addition, all landfills must have collection systems, monitoring wells, and other surveillance programs established to ensure the environmental safety of the facility both during its operation and upon its closure. The network of environmental protection systems at the Chiquita Canyon Landfill includes a composite liner that exceeds federal requirements. The liner is made of clay and synthetic material. Two feet of clay is compacted to increase the impermeability of the liner. A geo-synthetic liner and a 40-mile high-density plastic membrane are placed over the clay. A drainage layer is installed over the liner. The liner system meets all state and federal regulations.

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11 Los Angeles County Department of Public Works, Los Angeles County Integrated Waste Management Plan, 2003 Annual Report on the Countywide Summary Plan and Countywide Siting Element, March 2005.

12 *Ibid.*

13 *Ibid.*

The environmental protection system also includes a leachate collection system, in which perforated pipe is placed atop the liner to allow for proper drainage/collection of rainwater and other liquids in the landfill. Once collected, the liquid is shipped off site for treatment.

Rainfall that is diverted away from the landfill must also be managed. At the Chiquita Canyon Landfill, stormwater runoff is collected and contained in sedimentation basins. These ponds allow soil particles to settle out of the water before it is discharged to a nearby waterway.

Groundwater is one of the most important concerns at a landfill and requires special monitoring. Groundwater monitoring wells have been installed throughout the site to ensure that landfill operations are not impacting groundwater. Each of the wells is sampled on a monthly basis, with the results sent to the California Department of Environmental Protection and Water Resources Board.

A gas management system was installed in the early 1990s and is used to control methane gas, which is naturally produced during waste decomposition. The gas is collected and safely burned at a single, enclosed flare stack located on the site. This system has greatly reduced odors and prevented gas migration.

Access to the site is limited to one entrance and one exit. The facility records and tracks all shipments to the landfill with scales and gate receipts. Each load of incoming waste is visually inspected to ensure that only permitted materials are accepted for disposal. Once unloaded, the waste is immediately compacted to conserve airspace. At the end of each working day, daily cover is placed over the compacted waste to minimize odors.

Steps also are taken to control dust and litter at the landfill. Periodic watering of access roads prevents dust from rising when trucks travel in and out of the landfill. Litter is minimized by limiting the size of the active disposal area, applying daily cover, and using fencing on windy days to catch lightweight materials. Laborers collect any litter that blows away from the landfill.

The facility is fully permitted by RWQCB, the Los Angeles County Department of Health Services, and the South Coast Air Quality Management District (SCAQMD). State and local inspectors regularly inspect the site. Therefore, the potential environmental impact from this property is low.

(2) Other Sites

Of the six other sites located within a range of concern of the tract map property, one site, located within 500 feet of the tract map property and identified as Newhall Land and Farming, 3003 Walnut Orchard

Road, was the location of a soil-only release, but the case has been since closed. There is a low potential of environmental impact at this site.

A second site, 27900 Chiquito Canyon Road, located within 1,000 feet of the tract map property and on the Chiquito Canyon easement, was the site of the release of an unknown compound in 1989. The exact location of the release is unknown and is not considered likely to be on the proposed project site. Therefore, there is a low potential of environmental impact at this site.

A third site, identified as Travel Village, 27946 Henry Mayo Drive, and located within 2,000 feet of the tract map property, is included on numerous databases, although it is not on the leaking underground storage tank (LUST) database, the database of concern for this project site. Therefore, there is a low potential of environmental impact at this site.

The fourth site, identified as TA Manufacturing, 28065 W. Franklin Parkway, and located within 2,000 feet of the tract map property, is listed as a large quantity hazardous waste generator, with no violations listed. Therefore, there is a low potential of environmental impact at this site.

The fifth site, as identified as LA City Fire Department/Delval Target Center/Unocal-Lincoln Lease 28101 Chiquito Canyon Road, which is 2,000 feet south of the tank sites and west of Chiquito Canyon easement (cross and down-gradient) is listed as HAZENET LA County Site Mitigation, LA County HMS, LUST, Cortese, AST, CA Spills Leaks Investigation and Cleanup (SLIC) and CHMIRS. The site was the location of the disposal of waste oil, release of hydrocarbon to soil only and the release of crude oil due to damaged pipeline. The site is presently undergoing remediation. Therefore, there is low potential of environmental impact at this site.

The database search revealed that the tract map property, the Adobe Canyon borrow site and the Chiquito Canyon grading site are neither located within a 0.5-mile radius of a Federal Superfund property, nor are they located within a 0.5-mile radius of a hazardous waste treatment, storage and disposal facility.

b. Utility Corridor and Water Tank Site

The utility corridor and water tank site are not listed on any of the searched databases. Twelve sites were reported near the utility corridor and water tank site, in addition to the six sites reported near the tract map property, and the Adobe Canyon borrow site. Several of these reported sites are adjacent to the utility corridor stretch of land, and are listed as either UST or LUST sites. Although there have been releases at these adjacent sites, since the adjacent property at issue is the narrow utility corridor, there is a low potential for the adjacent site to have an environmental impact on the utility corridor.

7. PROJECT IMPACTS

a. Significance Threshold Criteria

Generally, a proposed project would result in significant environmental safety impacts if it would result in the exposure of people to risks beyond acceptable levels. According to Appendix G of the *California Environmental Quality Act (CEQA) Guidelines*, a project would have a significant effect on the environment relative to hazards and hazardous materials if the project would:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials;
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment;
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school;
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would create a significant hazard to the public or the environment;
- Result in a safety hazard for people residing or working in the project area due to the project's location within 2 miles of a public airport or public use airport;
- Result in a safety hazard for people residing or working in the project area due to the project's location within the vicinity of a private airstrip;
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan;
- Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands; or
- Expose people to existing sources of potential health hazards (e.g., electrical transmission lines, gas lines, oil pipelines).

In this case, the proposed project entails the construction of a residential, mixed-use, and non-residential development with supporting school, park and other supporting uses. The proposed project will not entail the routine transport, use or disposal of hazardous materials. Based on the proposed uses, the project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within 0.25 mile of an existing or proposed school. Therefore, Criterion (a) and (c), are not applicable to the project and will not be analyzed further.

The proposed project is not located within 2 miles of a public airport or public use airport, nor is it located within the vicinity of a private airstrip. Therefore, the proposed project will not result in a safety hazard for people residing or working in the project area due to proximity to aviation uses. Therefore, Criterion (e) and (f) are not applicable to the project and will not be analyzed further.

As to whether the proposed project would impair implementation or physically interfere within an adopted emergency response plan, Criterion (g), please see EIR **Section 4.13**, **Sheriff Services.** As to whether the proposed project would expose people or structures to a significant risk involving wildland fires, Criterion (h), please see **Section 4.14**, **Fire Protection Services**.

Based on the *CEQA Guidelines*, the only significant impact criterion potentially applicable to the proposed project are Criterion (d), location on a site included on a list of hazardous materials, and Criterion (i), exposure of people to existing sources of potential health hazards. As discussed previously**,** the proposed Landmark Village project site is not located on a site that is included on the list of hazardous materials compiled pursuant to Government Code Section 65962.5. Therefore, the proposed project will not create a significant hazard to the public or environment under Criterion (d).

Accordingly, the only significance criterion relevant to the proposed project is Criterion (i), whether the proposed project would expose people to existing sources of potential health hazards.

b. Site-Specific Project Impacts

An analysis of each of the sources of potential health hazards presently existing on the Landmark Village project site is presented below.

(1) Soil Staining

As discussed in **subsections 4b, 4c(1), 4f(1), and 4(h)1**, soil staining was observed in the following areas of the proposed project site: (1) beneath an abandoned pipeline along the old railroad easement; (2) near a former oil well on the Chiquito Canyon grading site; (3) beneath a diesel AST associated with a portable water pump located on the eastern portion of the tract map property; (4) near an equipment storage area located in the eastern portion of the tract map property, where agricultural chemical storage and mixing may have taken place; and (5) near a storage area in the central portion of the tract map property associated with a former airstrip, where agricultural chemical storage and mixing may have taken place.

Surficial soil staining with crude oil is a common result of oil field operations. As noted, there is localized staining of soils with crude oil on the project site. The California Hazardous Substances Control Act excludes unrefined petroleum and crude oil from the list of hazardous substances, unless the crude

contains volatile organic compounds (VOCs) in the form of naturally occurring benzene, toluenes, ethylbenzenes, or xylenes. In these cases, the crude is considered to be hazardous waste (see, California Code of Regulations, Title 22). Additionally, crude oil production, storage, processing, and transport are commonly associated with petroleum hydrocarbons, a hazardous substance potentially present in on-site soils. Soils contaminated with petroleum hydrocarbons near oil fields and abandoned wells are capable of generating methane gas through anaerobic biodegradation. In the event on-site soils contain crude oil and VOCs, this could pose a potentially significant impact to residential development, parks and schools unless remediated to applicable federal, state, and local standards.

Additionally, unless on-site contaminated soils are remediated, the potential for worker exposure to toxins is high during both construction and subsequent use of the developed site. If the stained soils contain high levels of petroleum hydrocarbons, heavy metals, or chemicals specifically regulated by Title 22, and the soils are not remediated, the impact to construction workers would be a significant impact.

(2) Oil Wells

As discussed in **subsection 4b**, up to three former oil wells and their associated production areas may exist on the tract map property. Several former wells also may exist on the Adobe Canyon borrow site and the Chiquito Canyon grading site. Soil staining was noted near at least one former oil well on the Chiquito Canyon grading site. Releases may have occurred near these former oil wells that potentially may have impacted the surrounding soils and groundwater table. Unremediated contaminated soil or groundwater could pose a potentially significant impact to construction workers and future residents.

(3) ASTs

As discussed in **subsection 4c(1)**, several ASTs, likely associated with oil production, existed on site in the 1950s. Soil staining was noted beneath a diesel AST on the eastern portion of the tract map property. Past releases may have occurred if a pipeline connected to a storage tank ruptured, if a tank was punctured or damaged, or during the transfer of crude between a storage tank and a transport vehicle. Under these scenarios, releases may have occurred near these ASTs that potentially may have impacted the surrounding soils and groundwater table.

(4) Debris and Asbestos

As discussed in **subsection 4d**, accumulations of miscellaneous debris, including concrete pipes, old oil pipelines, transite concrete pipe, construction debris piles, an old pickup truck body, wood debris, old trash piles, old telephone poles, and household trash, are located on the tract map site, primarily in the western portion of the site. Former trash piles with various bottles, cans, wood and metal debris were

observed along the easement for the water tank site. Concrete and wood debris also were observed on the Adobe Canyon borrow site.

As noted previously, during site investigations, scattered suspect ACMs were observed. These suspect ACMs included pieces of transite pipe, construction material debris along the old railroad easement, and tar-like coating observed on metal pipe sections located in the western portion of the development site.

ACM debris is a hazardous material that may require appropriate disposal. The presence of these hazardous materials on the proposed project site would be a potentially significant impact.

(5) Pipelines

As discussed in **subsection 4f**, several pipelines cross the tract map property, and one pipeline crosses the Chiquito Canyon grading site. These pipelines can carry crude oil, water and natural gas. Soil staining was noted beneath an abandoned pipeline along the railroad easement. A pipeline rupture could have impacted surrounding soils and potentially the groundwater table.

(6) Pesticides

As discussed in **subsection 4g**, in order to assess the potential impacts associated with the past use of pesticides on the proposed project site, ESA conducted a soil sampling analysis. As previously noted, soil samples taken from the tract map site contain some concentrations of Organochlorine Pesticides (OCP), but none of the samples revealed concentration that exceeded the residential or industrial use Preliminary Remediation Goals for those compounds. Additionally, no detectable concentrations of Organophosphorous Pesticides or Chlorinated Herbicides were contained in the samples analyzed. Based on the results of the soil sampling analysis, there is a low potential for threat to human health or the environment due to the past use of pesticides on the proposed project site.

As to potential impacts associated with the future use of pesticides, agricultural cultivation is likely to continue on the tract map site over time as the uses are developed. Eventually, urban land uses will completely replace the agricultural uses on site. However, agricultural activities and pesticide use to the west of the site in other areas of the Specific Plan would continue until the Specific Plan builds out, while land cultivated in Ventura County is assumed to continue indefinitely. Pesticide use on other lands will subject residents to minimal and incidental exposure. Due to the regulation of pesticides used in connection with ongoing agricultural activities, including the chemical and physical properties of the pesticides, use according to manufacturer specifications, and their mode of application, it is not expected that humans would be subject to either acute overexposure or chronic exposure to any of the pesticides

used. Therefore, the on-site use of pesticides would not create a potential public health hazard, and would not result in a significant impact to the tract map property or future residents.

(7) Electrical Transmission

As discussed in **subsection 4k**, an electrical transmission tower is located in the Chiquito Canyon grading site.

As indicated previously, the California State Board of Education requires that no schools be sited 100 feet from the edge of the right-of-way of 100–110 kV lines; 150 feet from 220–230 kV lines; and 250 feet from 345 kV lines. There are no 100–110 kV, 220–230 kV or 345 kV lines within the boundary of the project site and none are proposed; consequently, no schools are proposed within approximately 500 feet of SCE transmission lines within the project site, which is consistent with the referenced restrictions.

There is no known EMF exposure threshold level for biological effects, and the County has no threshold of significance for EMFs. Because there is no established significance threshold, and because the issue of EMF effects is still largely unknown, there is no known significant impact associated with placing development adjacent to SCE transmission easements. However, in light of public debate over EMFs and inconclusive findings of the research that has been conducted on this issue, as well as easement restrictions, no development is proposed to occur within these easements. Therefore, the proposed project would not expose people, animal, or plant life populations to known health hazards from SCE transmission lines. Based upon this information, impacts relative to EMFs would be reduced to less than significant levels. No mitigation is required or recommended.

(8) Sites Included on Agency Lists

As discussed in **subsection 6**, the closest facility to the proposed project site that is included in the government hazardous materials/hazardous waste databases is the Chiquita Canyon Landfill, located to the north of the project site across SR-126. As previously noted, the landfill has implemented measures, in compliance with federal, state, and local regulations, to mitigate any potential environmental impacts, and is located in an assumed cross-gradient location relative to the regional groundwater flow direction. Therefore, no impacts to the proposed project from this facility are likely.

As also previously noted, the other four properties located within a range of environmental concern proximate to the tract map property, are all identified within the databases as having a low potential impact. Therefore, based on the status and distances of these facilities, there is a low potential of environmental impact due to contamination from these off-site sources.

(9) Southern California Gas Company High-Pressure Line

According to Southern California Gas Company (SCGC) staff, the high-pressure gas line in the northern portion of the Landmark Village site and in the utility corridor would not pose a significant environmental safety impact to future residents. Similar high-pressure gas lines located close to development commonly occur throughout California and the Santa Clarita Valley. SCGC lines are inspected regularly and must comply with CPUC-mandated safety requirements. Such safety precautions are also taken on the high-pressure gas lines within the site and no significant impacts associated with placing development in close proximity to these lines would occur. The Landmark Village project would not expose people, animal, or plant life populations to potential health hazards from SCGC high-pressure gas lines. Based upon this information, impacts relative to the high-pressure gas line would be less than significant. No mitigation is required or recommended.

(10) Transport of Hazardous Materials Along SR-126

Because hazardous materials can be transported on SR-126, increased traffic on this highway could increase the potential for an accident involving a hauler of these substances. Because the hauler of these substances must be trained and licensed, and because their transport is highly regulated and monitored, the potential for an accident involving explosive and inhalation materials is diminished to below the threshold of significance. The Landmark Village project would not expose people, animal, or plant life populations along SR-126 to significant health hazards associated with hazardous material transport. Based upon this information, impacts relative to the transport of hazardous materials on SR-126 would be less than significant. No mitigation is required or recommended.

(11) Dam Inundation Area

Dams are regularly inspected and maintained by the California Water Resources Division of Safety of Dams. Since 1928, there have only been two major failures and one near dam failure within the County. Nonetheless, dam failure is remotely possible and, under a worst-case scenario, the Landmark Village site and the development areas proposed within it could be inundated should the Castaic and Forebay Reservoir dams fail. Given the continuous efforts of the Division of Safety of Dams of the Department of Water Resources to inspect and maintain the structural integrity of the state's dams, the Landmark Village project is not likely to expose people to potential health hazards associated with dam failure. Based upon this information, impacts relative to dam inundation would be less than significant. No mitigation is required or recommended.

(12) Radon

As previously noted, the U.S. EPA's Map of Radon Zones indicates that all of Los Angeles County has been designated as lying within Zone 2, which indicates a predicted average indoor radon screening level of greater than or equal to 2.0 pCi/l and less than or equal to 4.0 pCi/l. Therefore, based on this information, the Landmark Village project site is located within an area with a predicted average indoor radon screening level that is at or below the recommended U.S. EPA Action Level of 4.0 pCi/l.

As of November 2005, the California DHS has conducted a total of 69 radon detection tests in homes located in the surrounding communities of Santa Clarita, Valencia, Newhall and Stevenson Ranch. None of the tests conducted by DHS detected radon concentrations in excess of the 4.0pCi/l standard.[14] Therefore, based on the results of the DHS tests, and the determination by the U.S. EPA that the project site lies within an area with a predicted indoor screening level either below or at the minimum recommended U.S. EPA Action Level, the potential for radon to adversely affect the residents of the proposed project is not considered to be significant. Therefore, no mitigation measures are required.

(13) Sludge Disposal Site

Related to the issue of sludge disposal safety, the County of Los Angeles, Department of Health Services, Public Health recently conducted a review of the documentation concerning sludge disposal on the Westcreek site located approximately 3.5 miles east of the Landmark project site. Like the Landmark project site, the County Sanitation Districts of Los Angeles County also used the Westcreek site for sludge disposal purposes. The Department of Health Services concluded that: The most compelling factor demonstrating that there is no public health risk, is the significant time that has passed since it was last utilized as a municipal sewage disposal site. This land has not been used for sludge disposal since 1986. Consequently, any potential biological hazards at that time would not be hazardous today."[15] Considering that sludge disposal activities ceased on the project site in 1973, given the findings on the Westcreek site it can be safely concluded that there would be no potential biological hazards at this time.

Additionally, a third party review of sludge conditions on the site conducted by BA Environmental on August 30, 2006, concluded that:

> *Since the cessation of the disposal operations in 1973, the disposal site has been used for agricultural cropland. These agricultural activities would have included frequent disking and turning of the soils. This frequent turning of the soils would have aerated the shallow soils beneath the subject site. Based on the length of time since the last disposal event and the frequent turning of the soils in the former disposal site #6 [portion of project site], it is highly unlikely that any*

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14 *California Department of Health Services, California Indoor Radon Levels Sorted by Zip Code,* November 7, 2005 (http://www.dhs.ca.gov/radon/PDFs/California%20Radon%20Data%20base.pdf), accessed February 2006.

15 Please refer to **Appendix 4.21** for a copy of the Department of Health Services' letter, dated April 14, 2006.

pathogens remain in the soil from the former sludge disposal activities. In addition, due to the frequent turning of the soil, the usage of the land for agricultural crops and the natural concentrations of nitrates, ammonia, phosphates or heavy metals in the sludges deposited in the soil due to sludge disposal remain. In addition, Newhall Land has informed BA Environmental that the current grade of the land for the Landmark Village site is going to be brought up a minimum of 10 feet. This will place at least 10 feet of fill between the planned grade and the soil in which the sludge was deposited. Based on the additional 10 feet of fill on top of the former sludge disposal site, it is highly unlikely that humans could come into contact with the soil from the former sludge disposal site. Therefore, it is BA Environmental's opinion that the former sludge disposal site poses a very low threat to human health, and does not pose any significant environmental issues.

8. MITIGATION MEASURES

Although the proposed Landmark Village project may result in potential environmental safety impacts absent mitigation, the County already has imposed mitigation measures required to be implemented as part of the Newhall Ranch Specific Plan. These mitigation measures, as they relate to environmental safety, are found in the previously certified Newhall Ranch Specific Plan Program EIR and the adopted Mitigation Monitoring Plan for the Specific Plan (May 2003). In addition, this EIR identifies recommended mitigation measures specific to the Landmark Village project site. The project applicant has committed to implementing the applicable mitigation measures from the Newhall Ranch Specific Plan and will implement the mitigation measures recommended for the proposed Landmark Village project to ensure that future development of the project site and related off-site grading activities would be safe from an environmental safety standpoint, and that such development would not adversely affect adjacent properties.

a. Mitigation Measures Required of the Newhall Ranch Specific Plan and Relevant to the Landmark Village Project

The following mitigation measures (Mitigation Measure Nos. 4.21-1 through 4.21-9, below) were adopted by the County in connection with its approval of the Newhall Ranch Specific Plan (May 2003). The applicable mitigation measures will be implemented to mitigate the potentially significant environmental safety impacts associated with the Landmark Village project. These measures are preceded by "SP," which stands for Specific Plan.

SP 4.21-1 All final school locations are to comply with the California State Board of Education requirement that no schools be sited within 100 feet from the edge of the right-of-way of 100–110 kV lines; 150 feet from the 220–230 kV lines; and 250 feet from the 345 kV lines. (*This mitigation measure is not applicable to the Landmark Village project, because the school on the project site will be located over 500 feet from the nearest overhead transmission line.*)

SP 4.21-2 Only non-habitable structures shall be located within SCE easements.

SP 4.21-3 Prior to issuance of grading permits, all abandoned oil and natural gas-related sites must be remediated to the satisfaction of the California Department of Oil and Gas, the Los Angeles County Hazardous Materials Control Program, the South Coast Air Quality Management District, and/or the Regional Water Quality Control Board (Los Angeles region).

SP 4.21-4 All ongoing oil and natural gas operational sites adjacent to or in close proximity to residential, mixed-use, commercial, business park, schools and local and Community Parks shall be secured by fencing and emergency access to these locations shall be provided. (*This mitigation measure is not applicable to the Landmark Village project, because no ongoing oil and natural gas operational sites will occur within the project site.*)

SP 4.21-5 The Specific Plan is to meet the requirements of Southern California Gas Company (SCGC) in terms of pipeline relocation, grading in the vicinity of gas mains, and development within SCGC easements. These requirements would be explicitly defined at the future tentative map stage.

SP 4.21-6 All potential buyers or tenants of property in the vicinity of Southern California Gas Company transmission lines are to be made aware of the line's presence in order to assure that no permanent construction or grading occurs over and within the vicinity of the high-pressure gas mains.

SP 4.21-7 In accordance with the provisions of the Los Angeles County Building Code, Section 308(d), all buildings and enclosed structures that would be constructed within the Specific Plan located within 25 feet of oil or gas wells shall be provided with methane gas protection systems. Buildings located within 25 feet and 200 feet of oil or gas wells shall, prior to the issuance of building permits by the County of Los Angeles, be evaluated in accordance with the current rules and regulations of the State of California Division of Oil and Gas.

SP 4.21-8 In accordance with the provisions of the Los Angeles County Building Code, Section 308(c), all buildings and structures located within 1,000 feet of a landfill containing decomposable material (in this case, Chiquita Canyon Landfill) shall be provided with a landfill gas migration protection and/or control system.

SP 4.21-9 In accordance with the provisions of the Los Angeles County Code, Title 11, Division 4, Underground Storage of Hazardous Materials regulations, the County of Los Angeles Department of Public Works shall review, prior to the issuance of building permits by the County of Los Angeles, any plans for underground hazardous materials storage facilities (e.g., gasoline) that may be constructed or installed within the Specific Plan.

b. Additional Mitigation Measures Proposed By This EIR

The following project-specific mitigation measures are recommended to mitigate the potentially significant environmental safety impacts that may occur with implementation of the proposed Landmark Village project. These mitigation measures are in addition to those adopted in the previously certified Newhall Ranch Specific Plan Program EIR. To indicate that the measurers relate specifically to the Landmark Village project, each measure is preceded by "LV," which stands for Landmark Village.

(1) Soil Staining

LV-4.21-1 During grading operations, those areas of the Landmark Village tract map property, the Adobe Canyon borrow site, and the Chiquito Canyon grading site identified as formerly containing above-ground storage tanks, current agricultural storage areas and current soil staining by the Phase I Environmental Site Assessment of Landmark Village Tentative Tract Map No. 53108, Highway 126, Newhall Ranch, California (BNA Environmental, May 2004) and Addendum Letter Phase I Environmental Site Assessment of Proposed Water Tank Locations and Utility Corridor Easements Associated With the Proposed Landmark Village Development Tentative Tract Map No. 53108, State Highway 126, Newhall Ranch, California (BNA Environmental, September 2004), shall be investigated for the presence of petroleum hydrocarbons and hazardous materials and/or wastes, and, where necessary, shall be remediated in conformance with applicable federal, state, and local laws, to the satisfaction of the California Department of Conservation, Division of Oil and Gas, the Los Angeles County Hazardous Materials Control Program, the South Coast Air Quality Management District, and/or the Regional Water Quality Control Board (Los Angeles region).

(2) Oil Wells

LV-4.21-2 During grading operations, all former oil wells located on the Landmark Village tract map property, the Adobe Canyon borrow site and the Chiquito Canyon grading site shall be reabandoned according to the requirements of the California Department of Conservation, Division of Oil and Gas, if such sites are to be disturbed or are located in an area of development.

(3) Pipelines

LV-4.21-3 During grading operations, all pipelines located on the Landmark Village tract map property or the Chiquito Canyon grading site that will no longer be used to transport oil products shall be reabandoned according to the requirements of the California Department of Conservation, Division of Oil and Gas. The soil beneath these pipelines shall be assessed for petroleum hydrocarbons. Any contaminated soil located within grading operations or development areas shall be remediated in conformance with applicable federal, state, and local laws, to the satisfaction of the California Department of Conservation, Division of Oil and Gas, the Los Angeles County Hazardous Materials Control Program, the South Coast Air Quality Management District, and/or the Regional Water Quality Control Board (Los Angeles region). Any pipeline to remain in use shall be assessed for hydrocarbon leakage.

(4) Debris and Asbestos

LV-4.21-4 During grading operations, all scattered suspect asbestos-containing material debris located on the Landmark Village tract map property, the Adobe Canyon borrow site and the Chiquito Canyon grading site shall be disposed of in accordance with applicable federal, state, and local requirements.

(5) Previously Unidentified Hazards

LV-4.21-5 In the event that previously unidentified, obvious, or suspected hazardous materials, contamination, underground storage tanks, or other features or materials that could present a threat to human health or the environment are discovered during construction, construction activities shall cease immediately until the subject site is evaluated by a qualified professional. Work shall not resume until appropriate actions recommended by the professional have been implemented to demonstrate that contaminant concentrations do not exceed risk-based criteria.

9. CUMULATIVE IMPACTS

As man-made hazards are site-specific issues, no impacts would occur with respect to cumulative impacts.

10. CUMULATIVE MITIGATION MEASURES

There would be no cumulative impacts with regard to man-made hazards and, consequently, no cumulative mitigation measures are required.

11. SIGNIFICANT UNAVOIDABLE IMPACTS

a. Development Property, Adobe Canyon Borrow Site, and Chiquito Canyon Grading Site

With implementation of the mitigation measures listed, and compliance with federal, state, and local regulations, any potential environmental safety impacts associated with the Landmark Village tract map site, the Adobe Canyon borrow site, and the Chiquito Canyon grading site would be reduced to below a level of significance.

b. Utility Corridor and Water Tank

No potentially significant impacts were identified or anticipated with respect to the water tank locationsand the utility corridor. Therefore, there are no significant unavoidable impacts.

c. Surrounding Property

No potentially significant impacts were identified or anticipated with respect to property surrounding the Landmark Village project site. Therefore, there are no significant unavoidable impacts.

4.22 CULTURAL/PALEONTOLOGICAL RESOURCES

1. SUMMARY

Phase I and II archaeological surveys of all cultural resources were undertaken within the Newhall Ranch Specific Plan, including the Landmark Village tract map site. The Phase I survey resulted in the discovery and recording of two prehistoric archaeological sites. Subsequently, Phase II archaeological studies were conducted at these sites. One site (CA-LAN-2233) was found to contain two components: a northern component containing a subsurface archaeological deposit and intact artifacts; and a southern component consisting solely of a surface scatter of stone artifacts. The northern component contains scientific information that may contribute to the reconstruction of local prehistory; therefore, development of this northern area has the potential to result in significant impacts to cultural resources. The second component represented lithic scatter that had been extensively disturbed and did not contribute to the knowledge of prehistoric pathways. The Phase II testing determined that the second site (CA-LAN-2234) did not represent an extant archaeological site. Inadvertent direct and/or indirect disturbance during construction to any sensitive cultural resource found on the project site would be considered a significant impact absent mitigation.

A Phase I paleontologic report was prepared to determine the likelihood of encountering paleontologic resources on the project site. This report focused on a literature and records search, as well as an extensive field survey of the area proposed for development. The proposed project would occur in geologic formations with high and moderate potential for the discovery of fossil remains. Therefore, grading activities associated with the proposed project could have significant impacts on the region's paleontological resources absent mitigation.

2. INTRODUCTION

a. Relationship of Project to Newhall Ranch Specific Plan Program EIR

Section 4.3 of the Newhall Ranch Specific Plan Program EIR identified and analyzed the existing conditions, potential impacts, and mitigation measures associated with cultural and paleontological resources for the entire Newhall Ranch Specific Plan. The Newhall Ranch Specific Plan Program EIR mitigation program was adopted by Los Angeles County (County) in findings and in the revised Mitigation Monitoring Plan for the Specific Plan. The Newhall Ranch Specific Plan Program EIR concluded that Specific Plan implementation would result in significant impacts to archaeological and paleontological resources, but that the identified mitigation measures would reduce the impacts to below levels of significance. All subsequent project-specific development plans and tentative subdivision maps must be consistent with the Newhall Ranch Specific Plan, the County of Los Angeles General Plan, and Santa Clarita Valley Area Plan.

This project-level EIR is tiering from the previously certified Newhall Ranch Specific Plan Program EIR. **Section 4.22** discusses, at the project-specific level, the Landmark Village project's existing conditions, the project's impacts on cultural and paleontological resources, the applicable mitigation measures from the Newhall Ranch Specific Plan Program EIR, and any mitigation measures recommended by this EIR for the Landmark Village project.

3. SUMMARY OF THE NEWHALL RANCH SPECIFIC PLAN PROGRAM EIR FINDINGS

a. Archaeological

The Newhall Ranch Specific Plan study area was found to have a very low density of archaeological remains, with site locations closely conforming to the expectations derived from the archival records search. With only two exceptions, the identified sites are concentrated along the Santa Clara River.

(1) Prehistoric Archaeological Sites

A total of eight prehistoric archaeological sites and one isolated artifact were identified during the intensive Phase I survey. Six sites were found along or near the Santa Clara River, and are referred to as CA-LAN-2133, -2241, -2235, -2234, -2233, and -2242. The other two prehistoric archaeological sites are CA-LAN-2236 and -2240.

(2) Historical Archaeological Sites

During the Phase I survey, one historical site was found on the Newhall Ranch Specific Plan site and another was found immediately off-site. Both are concentrated in the northeastern end of the property. This area includes the on-site Asistencia de San Francisco Xavier (CA-LAN-962H), and the off-site, original Newhall Ranch headquarters (CA-LAN-961H), the built structures of which were removed from this locale several years ago. Neither of the two sites is listed in the National Register for Historic Places or the California Register of Historic Resources; however, because the Rancho San Francisco is listed as a California Historical Landmark, the Asistencia is also technically listed as such.[1]

(3) Phase II Testing

Sites CA-LAN-2133 and -2235 were found to contain subsurface archaeological deposits and intact prehistoric artifacts that can contribute to the scientific reconstruction of prehistoric lifeways in the Santa Clara River Valley. Development at these locales has the potential to result in significant impacts to cultural resources. CA-LAN-2233 was found to contain two components: a northern component

1 Interview with Joe Simon, W & S Consultants, Simi Valley, California, February 21, 1996.

containing a subsurface archaeological deposit and intact artifacts; and a southern component consisting solely of a surface scatter of stone artifacts. The northern component of CA-LAN-2233 contains scientific information that may contribute to the reconstruction of local prehistory; development of this northern area, therefore, has the potential to result in significant impacts to cultural resources.

Although there is no longer an intact archaeological deposit at CA-LAN-2241, a burial of unknown origin is still present in a disturbed context within the site area. Development of this area, therefore, has the potential to result in significant impacts to archaeological remains, whether ultimately historical or prehistoric in age.

The Phase II testing determined that CA-LAN-2234 did not represent an extant archaeological site. Phase II fieldwork at CA-LAN-2236 resulted in the collection of all extant archaeological remains at that site. CA-LAN-2240 does not represent an extant cultural resource. There are no longer any extant archaeological remains at CA-LAN-2242. The final cultural resource located in the vicinity of Potrero and Chiquito Canyons was an isolated artifact that was salvaged during the Phase I survey.

The area containing the two historical sites (CA-LAN-961H and -962H) proved to fall outside of the development area and would not be significantly impacted by the Newhall Ranch Specific Plan; therefore, these two sites were excluded from Phase II fieldwork. Implementation of the Specific Plan would have no impacts on dedication of the Asistencia, and would not affect the schedule of its dedication to the Archaeological Conservancy, which would take place upon approval of the Specific Plan and related approvals, resolution of any litigation and parcelization of the Asistencia site.

b. Paleontological

The Pico Formation and Saugus Formation within the development area of the Newhall Ranch Specific Plan have a high potential to yield paleontological resources because there is potential for the exposure of significant fossils in areas of these geologic units that are proposed for grading. Where Quaternary terrace deposits and Quaternary older alluvium exist in the development area, there is a moderate potential for yielding paleontological resources because there is potential for the exposure of significant fossils in areas of these geologic units. Therefore, the Specific Plan's grading activities could have significant impacts on the site's paleontological resources. The Board of Supervisors found that adoption of the recommended mitigation measures would reduce the identified potentially significant effects to less than significant levels.[2]

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2 See Mitigation Measures 4.3-1 through 4.3-4 in both the certified Newhall Ranch Specific Plan Program EIR (March 9, 1999) and the adopted Mitigation Monitoring Plan for the Specific Plan (May 2003). In addition, please refer to the Additional CEQA Findings and Statement of Overriding Considerations, dated May 2003, at pages 62–63, for revised Mitigation Measure 4.3-4. All of these mitigation measures are reiterated in the mitigation measures portion of this EIR.

4. EXISTING CONDITIONS

Phase I and II archaeological studies of the entire Newhall Ranch Specific Plan site (including the future extension of Magic Mountain Parkway) were conducted in 1994 by W&S Consultants. A supplemental archaeological investigation was conducted in December 1995 for the proposed extension of Valencia Boulevard. RMW Paleo completed a paleontological study for the entire Newhall Ranch Specific Plan site in October 1994. Each analysis is summarized in this section, and is presented in the Newhall Ranch Specific Plan Program EIR (see Program EIR Appendix 4.3).

The information presented in the Newhall Ranch Specific Plan Program EIR, Section 4.3, Cultural/Paleontological Resources, assessed the existing setting of the entire Newhall Ranch Specific Plan, including the Landmark Village project site and surroundings, from an archeological and paleontological standpoint. Section 4.3 also provided detailed background information and findings regarding the archeological and paleontological analysis conducted on the Specific Plan site.

This information and the technical studies from the prior Newhall Ranch Specific Plan Program EIR (see Program EIR Appendix 4.3) were assessed at the project-level for the Landmark Village project to determine if there were archeological or paleontological effects, which were not examined in the prior Program EIR. It was determined that all significant archeological and paleontological effects were identified, adequately addressed and mitigated or avoided in the Newhall Ranch Specific Plan Program EIR and related environmental findings. Therefore, at the project level, this EIR will incorporate by reference the existing conditions analysis and background information relating to archeological and paleontological resources from the certified Newhall Ranch Specific Plan Program EIR (Section 4.3).

5. PROPOSED PROJECT IMPROVEMENTS

The applicant proposes to develop 1,444 residential dwelling units with a total residential population of 3,680,[3] approximately 1,033,000 square feet of commercial/mixed use space, a 9-acre elementary school, a 16-acre Community Park, four private recreational facilities, open space and river trail uses, trailhead, park and ride, and supporting roadway, drainage and infrastructure improvements. In addition, the applicant proposes to construct the Long Canyon Road Bridge over the Santa Clara River, and install exposed and buried bank stabilization on portions of the south and north side of the river.

The proposed project would require approximately 5.8 million cubic yards of imported fill. The needed fill would come from the Adobe Canyon borrow site, located within the boundary of the Newhall Ranch

[3] Based upon County of Los Angeles provided estimates of 3.17 persons per single-family dwelling, 2.38 persons per multi-family dwelling and per apartment.

Specific Plan. The project would also require off-site grading at Chiquito Canyon, within the utility corridor, and at the water tank site. **Figure 1.0-33, Off-Site Improvements**, in **Section 1.0**, **Project Description**, depicts the locations of the Adobe Canyon borrow site, Chiquito Canyon grading site, the utility corridor, and the water tank locations.

6. PROJECT IMPACTS

The analysis of potential impacts to cultural and paleontological resources associated with construction and operation of the proposed Landmark Village project, including the significance criteria applicable to assessing such impacts, is presented below.

a. Significance Threshold Criteria

State CEQA Guidelines, Appendix G, identifies certain criteria for determining whether a project's impacts on cultural resources are significant, including, as applicable here, whether the project would:

- Cause a substantial adverse change in the significance of a historical resource as defined in *CEQA Guidelines* Section 15064.5;
- Cause a substantial adverse change in the significance of an archeological resource pursuant to *CEQA Guidelines* Section 15064.5;
- Directly or indirectly destroy or impact a unique paleontological resource or site or unique geologic feature; or
- Disturb any human remains, including those interred outside of formal cemeteries.

Environmental impacts associated with cultural resources are specifically addressed in *CEQA Guidelines* Section 15064.5. Section 15064.5 identifies significance threshold criteria for determining impacts to archaeological and historical resources. Section 15064.5 states:

> *(b) A project with an effect that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment….*
>
> *(c) CEQA applies to effects on archeological sites.*
>
> *(1) When a project will impact an archeological site, a lead agency shall first determine whether the site is an historical resource, as defined in subsection (a).*
>
> *(3) If an archeological site does not meet the criteria defined in subsection (a), but does meet the definition of a unique archeological resource in Section 21083.2 of the Public*

Resources Code, the site shall be treated in accordance with the provisions of Section 21083.2…

(4) If an archeological resource is neither a unique archeological nor an historical resource, the effects of the project on those resources shall not be considered a significant effect on the environment….

Public Resources Code Section 21083.2 (g) provides:

(g) As used in this section 'unique archeological resource' means an archeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

(1) Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.

(2) Has a special and particular quality such as being the oldest of its type or the best available example of its type.

(3) Is directly associated with a scientifically recognized important prehistoric or historic event or person.

Section 21083.2(h) defines a "nonunique archeological resource" as follows:

(h) As used in this section, 'nonunique archeological resource' means an archeological artifact, object, or site which does not meet the criteria in subdivision (g). A nonunique archeological resource need be given no further consideration, other than the simple recording of its existence by the lead agency if it so elects.

b. Impact Analysis

(1) Archaeological

No portion of the Landmark Village tract map site would directly or indirectly impact either of the two known archeological sites in the area. However, the Chiquito Canyon grading site and the utility corridor on the south side of SR-126 pass near CA-LAN-2233 and CA-LAN-2234. CA-LAN-2233 was found to contain two components: a northern component containing a subsurface archaeological deposit and intact artifacts; and a southern component consisting solely of a surface scatter of stone artifacts. The northern component contains scientific information that may contribute to the reconstruction of local

prehistory. Activity associated with grading in the Chiquito Canyon grading site may have a potentially significant indirect impact on the northern site due to its close proximity to this resource.

Phase II fieldwork in the southern portion of CA-LAN-2233 resulted in the recovery of all extant artifacts from this area of the site. This recovery fully mitigates the potentially significant impact that might occur as a result of any land disturbance required for the utility corridor.

Phase II fieldwork at CA-LAN-2234 demonstrated that no intact cultural resources were present at this locale. Accordingly, land disturbance associated with the utility corridor at this locale would not result in significant impacts to cultural resources.

(2) Paleontological

Development can have both adverse and beneficial impacts on paleontological resources. Adverse impacts may be either direct or indirect, and include the destruction of paleontological resources because of the increase in activity in the area. Direct adverse impacts occur from brushing, grading, trenching, and other earthmoving activities. Indirect adverse impacts result from increased accessibility resulting in unauthorized fossil collecting by amateur collectors, especially in open space areas. Development can have beneficial impacts on the region's paleontological resources if proper measures are implemented during development. Beneficial impacts result when a paleontologist is permitted to monitor the site and to salvage exposed fossils of possible scientific significance.

A way of determining impacts is to estimate the potential for the discovery of fossils, which is a measure of the likelihood that fossils will be discovered during excavations into a given rock unit based on the past discovery of fossils from that rock unit. Paleontological potential does not measure the significance of individual fossils present within the study area, because it is impossible to accurately predict what individual fossils will be discovered.

A five-tiered classification system of sensitivity for paleontological resources (shown in **Table 4.22-1**, **Paleontologic Sensitivity Classification**) has been developed to evaluate the paleontologic potential of rock units within the Landmark Village area.[4] Each sensitivity rating reflects the potential for the discovery of fossil resources during site development.

[4] The data used to define these potentials came from a review of pertinent paleontological information and literature both within the study site and the surrounding areas, discussion with professional paleontologists, and field experience in Southern California.

Table 4.22-1
Paleontologic Sensitivity Classification

Potential	Description
NO	This rating applies to igneous rocks whose molten origins preclude fossil remains being preserved.
LOW	Rocks that are too young geologically to contain significant fossils, are altered, or have a poor record of fossil recovery.
MODERATE	Units that fall within this rating contain sedimentary rocks with histories of producing only limited numbers of fossils at many locations.
HIGH	Units that have well-established histories of containing significant fossils and/or fossils located on the study site.
INDETERMINATE	This classification applies to rock units where there is little or no history of fossil discoveries because of a lack of systematic exploration of rock exposures.

Source: RMW (1994).

Based on the results of RMW's field survey, screen washing efforts, literature review, and records search, the Landmark Village study area is underlain by geologic units rated from high to low paleontologic potential. The potential for fossil production of the individual formations in the study area is discussed below and summarized in **Table 4.22-2**, **Paleontologic Potential by Geologic Unit**. Potential impacts on paleontological resources are directly related to the potential for the discovery of fossils in a rock unit and the amount of grading that would occur in that rock unit.

Table 4.22-2
Paleontologic Potential by Geologic Unit

Geologic Unit	Paleontological Potential[1]	Impact Potential
Pico	HIGH	High
Saugus	HIGH	High
Older Alluvium	MODERATE	Moderate
Alluvium/Colluvium	LOW	Low

Source: RMW (1994).
[1] *See **Table 4.22-1** for definitions.*

The Pico Formation contains numerous invertebrates within the study area and is known to contain occasional marine vertebrates in other areas. Therefore, this unit is assigned a high potential for the discovery of fossils during development. Because portions of development proposed by Landmark Village would take place on exposures of the Pico Formation, there is a relatively higher potential for significant impacts on paleontological resources that might exist in this unit.

The Saugus Formation has a record of producing important invertebrates and vertebrate remains at several localities within and near the study area; therefore, it is assigned a high paleontological potential. Because portions of development proposed by Landmark Village would take place on exposures of the Saugus Formation, there is a relatively higher potential for significant impacts on paleontological resources that might exist in this unit.

The Quaternary older alluvium is assigned a moderate potential based on its apparent relationship to the terrace deposits. These units are underlain by older, highly fossiliferous deposits, and are in areas where site grading is likely to occur. Therefore, there is a moderate potential for impacts on paleontological resources that might exist in this unit.

The Quaternary alluvium/colluvium are assigned a low potential; regardless of the amount of development in these deposits, the potential for significant impacts is low.

In conclusion, the Pico Formation and Saugus Formation within the development area of the Landmark Village project have a high potential for yielding paleontological resources, because there is potential for the exposure of significant fossils in areas of these geologic units that are proposed for grading. Where Quaternary older alluvium exists in the development area, there is a moderate potential for yielding paleontological resources because there is potential for the exposure of significant fossils in areas of these geologic units. Therefore, the Landmark Village-related grading activities could have significant impacts on paleontological resources.

7. PROJECT MITIGATION MEASURES

As discussed above, the County previously imposed mitigation measures required to be implemented as part of the Newhall Ranch Specific Plan that would reduce potential significant cultural and paleontological impacts to below a level of significance. These mitigation measures, as they relate to cultural and paleontological resources, are found in the certified Newhall Ranch Specific Plan Program EIR and the adopted Mitigation Monitoring Plan for the Specific Plan (May 2003). The mitigation measures are also reiterated below.

a. Mitigation Measures Required by the Adopted Newhall Ranch Specific Plan, as They Relate to the Landmark Village Project

The following mitigation measures were adopted by the County in connection with its approval of the Newhall Ranch Specific Plan (May 2003). All of the mitigation measures are applicable to the Landmark Village project due to its geographic location. The applicable mitigation measures will be implemented in conjunction with the proposed project to mitigate the potentially significant impacts associated with the proposed project. These measures are preceded by "SP," which stands for Specific Plan.

SP 4.3-1 Any adverse impacts to California-LAN-2133, -2235, and the northern portion of -2233 are to be mitigated by avoidance and preservation. Should preservation of these sites be infeasible, a Phase III data recovery (salvage excavation) operation is to be completed on the sites so affected, with archaeological monitoring of grading to occur during subsequent soils removals on the site. This will serve to collect and preserve the scientific information contained therein, thereby mitigating all significant impacts to the affected cultural resource.

SP 4.3-2 Any significant effects to California-LAN-2241 are to be mitigated through site avoidance and preservation. Should this prove infeasible, an effort is to be made to relocate, analyze, and re-inter the disturbed burial at some more appropriate and environmentally secure locale within the region.

SP 4.3-3 In the unlikely event that additional artifacts are found during grading within the development area or future roadway extensions, an archaeologist will be notified to stabilize, recover and evaluate such finds.

SP 4.3-4 As part of an inspection testing program, a Los Angeles County Natural History Museum-approved inspector is to be on site to salvage scientifically significant fossil remains. The duration of these inspections depends on the potential for the discovery of fossils, the rate of excavation, and the abundance of fossils. Geological formations (like the Saugus Formation) with a high potential will initially require full time monitoring during grading activities. Geologic formations (like the Quaternary terrace deposits) with a moderate potential will initially require half-time monitoring. If fossil production is lower than expected, the duration of monitoring efforts should be reduced. Because of known presence of microvertebrates in the Saugus Formation, samples of at least 2,000 pounds of rock shall be taken from likely horizons, including localities 13, 13A, 14, and 23. These samples can be stockpiled to allow processing later to avoid delays in grading activities. The frequency of these samples will be determined based on field conditions. Should the excavations yield significant paleontological resources, excavation is to be stopped or redirected until the extent of the find is established and the resources are salvaged. Because of the long duration of the Specific Plan, a reassessment of the paleontological potential of each rock unit will be used to develop mitigation plans for subsequent subdivisions. The report shall include an itemized inventory of the fossils, pertinent geologic and stratigraphic data, field notes of the collectors and include recommendations for future monitoring efforts in those rock units. Prior to grading, an agreement shall be reached with a suitable public, non-profit scientific repository, such as

the Los Angeles County Museum of Natural History or similar institution, regarding acceptance of fossil collections.

b. Additional Mitigation Measures Proposed by this EIR

At the project-specific level, the following mitigation measures are recommended to further mitigate potentially significant cultural/paleontological impacts that may occur with implementation of the proposed Landmark Village project. This mitigation is in addition to that adopted in the certified Newhall Ranch Specific Plan Program EIR. To reflect that the mitigation relates specifically to the Landmark Village project, the "LV" designation precedes the measures below.

LV 4.22-1 Although no other significant cultural resources were observed or recorded, all grading activities and surface modifications must be confined to only those areas of absolute necessity to reduce any form of impact on unrecorded (buried) cultural resources that may exist within the confines of the project area. In the event that resources are found during construction, activity shall stop and a qualified archaeologist shall be contacted to evaluate the resources. If the find is determined to be a historical or unique archaeological resource, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation should be available. Construction work may continue on other parts of the construction site while historical/archeological mitigation takes place, pursuant to Public Resources Code Section 21083.2(i).

LV 4.22-2 For archeological sites accidentally discovered during construction, there shall be an immediate evaluation of the find by a qualified archeologist. If the find is determined to be a historical or unique archeological resource, as defined under CEQA, contingency funding and a time allotment sufficient to allow for implementation of avoidance measures or appropriate mitigation shall be provided. Construction work may continue on other parts of the construction site while historical/archeological mitigation takes place, pursuant to Public Resources Code Section 21083.2(i).

8. CUMULATIVE IMPACTS

Impacts upon cultural and paleontological resources tend to be site-specific and are assessed on a site-by-site basis. As discussed above, the Landmark Village study area contains cultural resources. Where these resources exist, implementation of the proposed project would represent an incremental adverse cumulative impact to cultural resources. However, provided that feasible mitigation is implemented by the proposed project, the project is not anticipated to contribute to significant cumulative impacts. Therefore, the project will have less than significant impacts on cultural resources, and such effects would not be cumulatively considerable. In fact, if mitigation is properly carried out, a positive impact on cumulative cultural resource information would occur; that is, mitigation measures would result in the acquisition of additional scientific information about the prehistory of the region, thereby serving to

clarify our reconstruction of prehistoric lifeways, while the artifacts obtained from the sites during mitigation procedures would be preserved for future analysis, study, and viewing.

9. CUMULATIVE MITIGATION MEASURES

Other than complying with the same mitigation that is required of the proposed project, no further mitigation is recommended or required, because the project does not contribute to any cumulatively considerable cultural or paleontological impacts.

10. SIGNIFICANT UNAVOIDABLE IMPACTS

a. Project-Specific Impacts

Provided that proposed mitigation measures are implemented, no significant unavoidable impacts are expected to result from implementation of the proposed project.

b. Cumulative Impacts

Provided that mitigation measures are implemented, no significant unavoidable cumulative impacts are expected to result from implementation of the proposed project.

4.23 GLOBAL CLIMATE CHANGE

1. SUMMARY

The proposed Landmark Village project would result in the emission of greenhouse gases (GHGs). This section discusses the scientific and regulatory developments surrounding global climate change and provides a quantitative inventory for the emissions that would result from approving Landmark Village. In the absence of regulatory criteria, a significance criterion also was developed to assess the impact of the project's GHG emissions. Both project and cumulative impacts were assessed against the identified significance criterion.

This section also discusses the Intergovernmental Panel on Climate Change's (IPCC) conclusion that there is a scientific consensus that global climate change is occurring, and that the frequency of heat extremes, heat waves, and heavy precipitation events likely will increase. Currently accepted models predict that continued GHG emissions at or above current rates will produce more extreme global climate changes during the 21st century than were observed during the 20th century. Relatedly, the section also addresses the IPCC's conclusion that human activities have increased atmospheric concentrations of GHGs.

Nonetheless, there are uncertainties. The uncertainties relate to predicting: the actual climate change experienced by various areas of the world; the rate at which air and water temperatures will rise; whether the consequences of global climate change will be sudden or gradual; whether the consequences will be catastrophic or manageable; and whether international, national, state, and local measures will effectively reduce GHG emissions.[1]

The emissions inventory for the proposed Landmark Village project considers eight categories of GHG emission sources that would result from approval of the Landmark Village project: (1) emissions due to land use/vegetation changes; (2) emissions from construction activities; (3) emissions associated with residential building use; (4) emissions associated with nonresidential building use; (5) mobile source emissions; (6) municipal source emissions; (7) area emissions; and (8) emissions associated with recreational center use. The emissions from land use/vegetation changes and construction activities are one-time emissions event, whereas emissions from the other sources would occur annually, throughout the life of the project. The inventory identified approximately 43,934 metric tons (tonnes) of carbon dioxide equivalent (CO_2e) one-time emissions, and 20,193 tonnes of CO_2e annual emissions. Of this annual amount, about 35 percent is attributable to vehicular emissions associated with residential and commercial activities, and about 57 percent is attributable to the energy use associated with residential and nonresidential buildings. If the one-time emissions are annualized, assuming a 40-year development life (which likely is low), then the one-time emissions account for approximately 1,098 tonnes (or 5 percent) of the annualized emissions. Taking the annualized one-time emissions into account, the annual emissions are 21,291 tonnes per year.

1 *Climate Action Team Report to Governor Schwarzenegger and the Legislature*, California Environmental Protection Agency (March 2006) pp. 15-16. This report is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.

These emission levels were analyzed to determine whether approval of Landmark Village would impede compliance with the GHG emissions reduction goals mandated by the California Global Warming Solutions Act of 2006 (Assembly Bill [AB] 32), which requires that California's GHG emissions be reduced to 1990 levels by 2020. The proposed project's CO_2e emissions from all annual sources are 31.2 percent below the level that would be expected if the proposed project were constructed consistent with the assumptions in the California Air Resources Board's projections for 2020 if "no actions are taken" (CARB 2020 NAT scenario). (See Climate Change Proposed Scoping Plan: A Framework for Change [Scoping Plan], California Air Resources Board [adopted December 2008].) Moreover, when the one-time land use/vegetation change and construction emissions are included, the proposed project's emissions are still 30.1 percent below the CARB 2020 NAT scenario. As provided in the Scoping Plan, a reduction of 29 percent below the CARB 2020 NAT scenario is required to meet the goals of AB 32. Therefore, the proposed project would not impede implementation of AB 32 as its reduction below the CARB 2020 NAT scenario is greater than that required in the Scoping Plan, and project impacts are less than significant.

This inventory was prepared assuming that all emissions from Landmark Village would be "new," in the sense that absent development of Landmark Village these emissions would not occur. Given the global nature of GHG emissions, questions arise over whether new global GHG emissions are caused by economic and population growth, and not the local development projects that simply accommodate such growth.

In addition, the proposed Landmark Village project's GHG emissions were assessed from a cumulative impact perspective. As discussed above, AB 32 requires approximately a 29 percent reduction of GHG emissions below the CARB 2020 NAT scenario. The project design features of Landmark Village would reduce its contribution of GHG emissions; therefore, especially when compared to a project that does not adopt such reduction strategies and sustainable development principles, the proposed project would enable California to meet its goal of returning to 1990 GHG emissions levels by 2020. As a result, the Landmark Village GHG emissions are not considered "cumulatively considerable" under CEQA.

2. BACKGROUND

a. Relationship of Project to Newhall Ranch Specific Plan Program EIR

The Newhall Ranch Specific Plan Program EIR did not identify and analyze the Newhall Ranch Specific Plan's impact on global climate change. Nonetheless, this project-level EIR tiers from the previously certified Newhall Ranch Specific Plan Program EIR, and this section assesses the Landmark Village project's GHG emissions and related global climate change impacts, and the need for mitigation measures and/or project design features.

b. Summary of the Newhall Ranch Specific Plan Program EIR Findings

As discussed above, the Newhall Ranch Specific Plan Program EIR did not quantify or analyze the GHG emissions resulting from approval of the Specific Plan. However, in response to identified significant

impacts in other environmental impact/resource categories (i.e., flood/hydrology; biota; traffic/access; air quality; water resources; wastewater disposal; fire services and hazards; education; parks, recreation and trails; electricity/utilities), Los Angeles County adopted numerous mitigation measures and conditions of approval, which not only reduce impacts to the specified environmental impact/resource category identified in the underlying Newhall Ranch Specific Plan Program EIR, but also reduce the amount of GHG emissions that would be generated by buildout of the Newhall Ranch Specific Plan and increase the Specific Plan's ability to respond to the effects of climate change.

c. References for this EIR Section

The technical analysis relied upon in this section was prepared by ENVIRON International Corporation. ENVIRON's report is titled, "Climate Change Technical Report: Landmark Village" (September 30, 2009), and is found in **Appendix 4.23** of this EIR.

3. EXISTING CONDITIONS

This section addresses the phenomenon of global climate change, including its causal factors and the consequences thereof, and surveys GHG emissions levels from statewide, national, and global perspectives.

a. Global Climate Change

Global climate change and *global warming* are both terms that describe changes in the earth's climate. Global climate change is a broader term that is used to describe any worldwide, long-term change in the earth's climate. This change could be, for example, an increase or decrease in temperatures, the start or end of an ice age, or a shift in precipitation patterns. The term global warming is more specific than global climate change and refers to a general increase in temperatures across the earth. Though global warming is characterized by rising temperatures, it can cause other climatic changes, such as a shift in the frequency and intensity of rainfall or hurricanes. Global warming does not necessarily imply that all locations will be warmer. Some specific, unique locations may be cooler even though the world, on average, is warmer. All of these changes fit under the term, global climate change.

While global warming can be caused by natural processes, the IPCC has noted that there is a general scientific consensus that most current global warming is the result of human activities.[2] This man-made,

2 *Climate Change 2007: The Physical Science Basis, Summary for Policymakers*, Intergovernmental Panel on Climate Change (2007), available online at http://www.ipcc.ch/. But see US Senate Report: Over 400 Prominent Scientists Disputed Man-Made Global Warming Claims in 2007 (December 2007) and U.S. Senate Minority Report: More Than 650 International Scientists Dissent Over Man-Made Global Warming Claims - Scientists Continue to Debunk "Consensus" in 2008 (December 11, 2008), available at http://epw.senate.gov/public/index.cfm ?FuseAction=Minority.SenateReport. These reports also are available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and are incorporated by reference.

or anthropogenic, warming primarily is caused by increased emissions of "greenhouse gases," which keep the earth's surface warm. This is called "the greenhouse effect." The greenhouse effect and the role greenhouse gases play are described below.

b. The Greenhouse Effect

By definition, greenhouses allow sunlight to enter a defined space and then capture some of the heat generated by the sunlight's impact on the earth's surface. The earth's atmosphere acts like a greenhouse by allowing sunlight in, but trapping some of the heat that reaches the earth's surface. When solar radiation from the sun reaches the earth, much of it penetrates the atmosphere to ultimately reach the earth's surface; this solar radiation is absorbed by the earth's surface and then re-emitted as heat in the form of infrared radiation.[3] Whereas the GHGs in the atmosphere let solar radiation through, the infrared radiation is trapped by GHGs, resulting in the warming of the earth's surface.[4]

The earth's greenhouse effect has existed far longer than humans have and has played a key role in the development of life. Concentrations of major greenhouse gases, such as carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and water vapor (H_2O), have been present naturally for millennia at relatively stable levels in the atmosphere that are adequate to keep temperatures on earth hospitable. Without these greenhouse gases and the greenhouse effect, the earth's temperature would be too cold for life to exist.

As human industrial activity has increased, atmospheric concentrations of certain GHGs have grown dramatically. **Figure 4.23-1**,[5] below, shows the increase in concentrations of CO_2 and CH_4 over time. As mentioned above, in the absence of major industrial human activity, natural processes have maintained atmospheric concentrations of GHGs (and, therefore, global temperatures) at constant levels over the last several centuries.[6] As the concentrations of greenhouse gases increase, more infrared radiation is trapped, and the earth is heated to higher temperatures. This process is described as "human-induced global warming."

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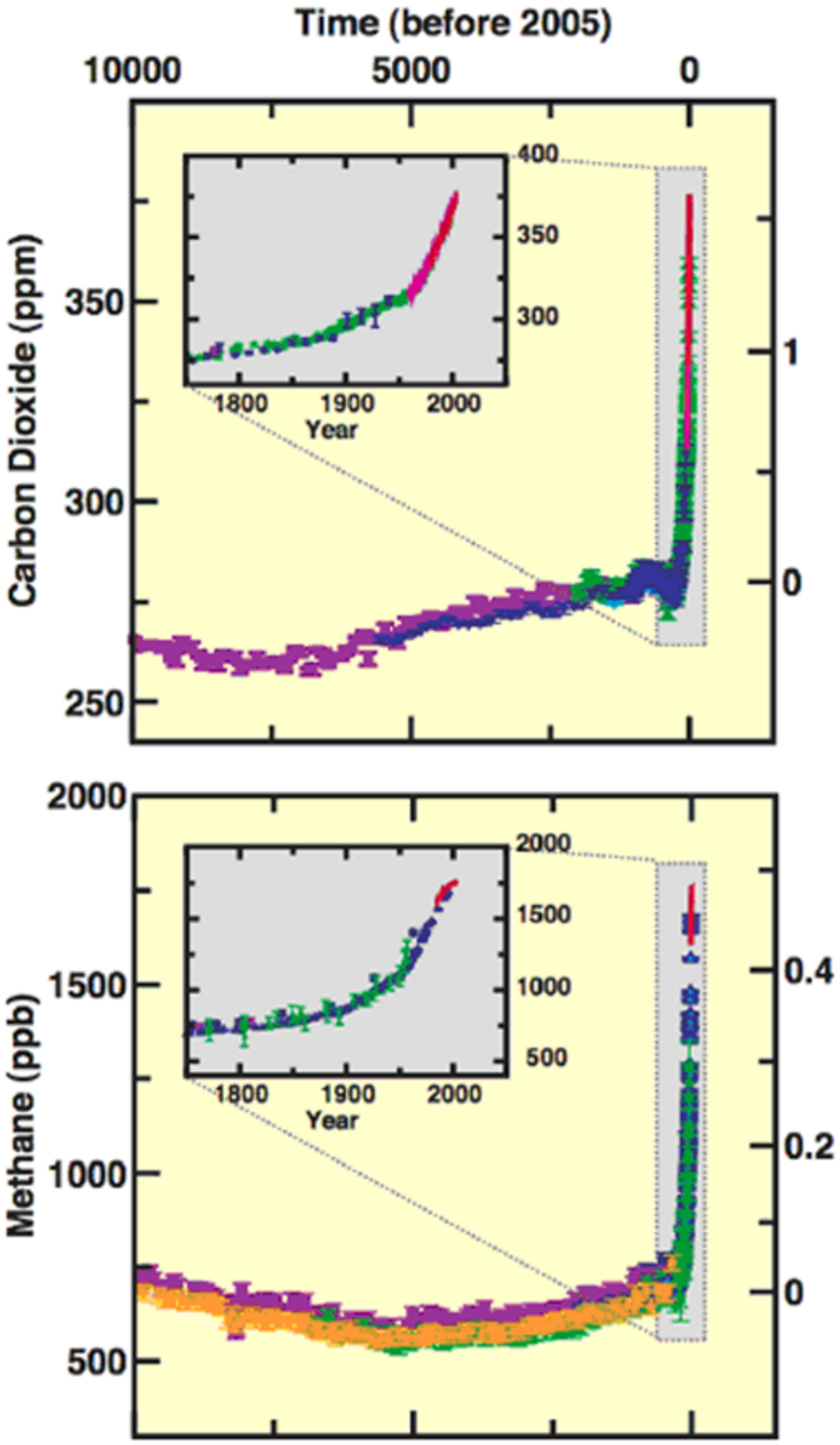
3 All light, be it visible, ultraviolet, or infrared, carries energy.

4 Infrared radiation is characterized by longer wavelengths than solar radiation. Greenhouse gases reflect radiation with longer wavelengths. As a result, instead of escaping back into space, greenhouse gases reflect much infrared radiation (i.e., heat) back to Earth.

5 Adapted from *Climate Change 2007: The Physical Science Basis, Summary for Policymakers*, *supra* footnote 2, Figure SPM-1.

6 Examples of natural processes include the addition of GHGs to the atmosphere from respiration, fires, and decomposition of organic matter. The removal of greenhouse gases is mainly from plant and algae growth and absorption by the ocean -- such processes are referred to as "carbon sequestering" processes.



SOURCE: Newhall Ranch RMDP - February 2007,

FIGURE **4.23-1**

Carbon Dioxide and Methane concentrations have increased dramatically since the industrial revolution

In 2007, the IPCC[7] began releasing components of its Fourth Assessment Report on climate change. In February 2007, the IPCC provided a comprehensive assessment of climate change science in its Working Group I Report, "The Physical Science Basis."[8] This IPCC report stated that there is a scientific consensus that the global increases in greenhouse gases since 1750 are due mainly to human activities, such as fossil fuel use, land use change (e.g., deforestation), and agriculture. In addition, the report stated that it is likely that these changes in greenhouse gas concentrations have contributed to global warming. The high confidence levels of claims in this report are due to the large number of simulations run and the broad range of available climate models.

c. Greenhouse Gases and Their Emissions

The term "greenhouse gases" includes gases that contribute to the natural greenhouse effect, such as CO_2, CH_4, N_2O, and H_2O, as well as gases that are man-made and emitted through the use of modern industrial products, such as hydrofluorocarbons (HFCs), chlorinated fluorocarbons (CFCs), and sulfur hexafluoride (SF_6). These last three families of gases, while not naturally present, have properties that also cause them to trap infrared radiation when they are present in the atmosphere, thus making them greenhouse gases. These six gases comprise the major GHGs that are recognized by the Kyoto Protocol.[9]

There are other GHGs that are not recognized by the Kyoto Protocol, due either to the smaller role that they play in climate change or the uncertainties surrounding their effects. For example, one GHG not recognized by the Kyoto Protocol is atmospheric water vapor, as there is no obvious correlation between water vapor concentrations and specific human activities. Water vapor appears to act in a feedback

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7 The World Meteorological Organization (WMO) and the United Nations Environment Programme (UNEP) established the IPCC in 1988; it is open to all members of the United Nations (UN) and WMO.

8 See, *supra*, footnote 2.

9 The Kyoto Protocol is linked to the United Nations Framework Convention on Climate Change (UNFCCC), which entered into force on March 21, 1994, and is an intergovernmental effort to address climate change. The UNFCCC is not binding, but does encourage and assist developed counties in stabilizing their GHG emissions. Under the UNFCCC, governments gather and share information on greenhouse gas emissions, launch national strategies, and cooperate in preparing for adaptation to the impacts of climate change.
The Kyoto Protocol requires parties to proceed "with a view to reducing their overall emissions of such [greenhouse] gases by at least 5 percent below 1990 levels in the commitment period 2008 to 2012." (Kyoto Protocol, Article 3, ¶1.) Most emission reductions associated with the Kyoto Protocol are to come from developed nations; a heavier burden is placed on developed nations because developed nations can more easily afford to cut emissions, and because developed countries have historically contributed more GHGs per capita.
This treaty was negotiated in Kyoto, Japan in December 1997, opened for signature on March 16, 1998, closed for signature on March 15, 1999, and came into force on February 16, 2005. The United States is a signatory to the Kyoto Protocol, but neither President Clinton nor President Bush submitted the treaty to Congress for approval. Therefore, because the treaty has not been ratified by Congress, the terms of the treaty are not binding on the United States.
For additional information on the UNFCCC and the Kyoto Protocol, see http://unfccc.int/2860.php; and http://unfccc.int/kyoto_protocol/items/2830.php.

manner: higher temperatures lead to higher water vapor concentrations, which in turn cause more global warming.[10]

The effect each of these gases has on global warming is a combination of the volume of their emissions and their global warming potential (GWP). GWP indicates, on a pound for pound basis, how much a gas will contribute to global warming relative to how much warming would be caused by the same mass of carbon dioxide. Methane and nitrous oxide are substantially more potent than carbon dioxide, with GWPs of 21 and 310, respectively. However, these natural greenhouse gases are nowhere near as potent as sulfur hexafluoride and fluoromethane, which have GWPs of up to 23,900 and 6,500, respectively. GHG emissions typically are measured in terms of mass of CO_2e emissions, which is the product of the mass of a given GHG and its specific GWP.

The most important greenhouse gas in human-induced global warming is carbon dioxide. While many gases have much higher GWPs, carbon dioxide is emitted in such vastly higher quantities that it accounts for 85 percent of the global warming potential of all GHGs emitted by the United States. Fossil fuel combustion, especially for the generation of electricity and powering of motor vehicles, has led to substantial increases in carbon dioxide emissions, and thus substantial increases in atmospheric carbon dioxide concentrations. In 2005, atmospheric carbon dioxide concentrations were about 379 parts per million (ppm), over 35 percent higher than the pre-industrial concentrations of about 280 ppm.[11] In addition to the sheer increase in the volume of its emissions, carbon dioxide is a major factor in human-induced global warming because of its lifetime in the atmosphere of 50 to 200 years.

The second most prominent GHG, methane, also has increased due to human activities such as rice production, degradation of waste in landfills, cattle farming, and natural gas mining. In 2005, atmospheric levels of CH_4 were more than double pre-industrial levels, up to 1,774 parts per billion (ppb), as compared to 715 ppb.[12] Methane has a relatively short atmospheric lifespan of only 12 years, but has a higher GWP than carbon dioxide.

Nitrous oxide concentrations have increased from about 270 ppb in pre-industrial times to about 319 ppb by 2005.[13] Most of this increase can be attributed to agricultural practices (such as soil and manure management), as well as fossil fuel combustion and the production of some acids. Nitrous oxide's 120-year atmospheric lifespan increases its role in global warming.

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10 *Climate Change 2001: The Scientific Basis*, IPCC (2001), available online at http://www.ipcc.ch/. This report also is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.

11 See, *supra,* footnote 2, at p. 2.

12 See, *supra,* footnote 2, at p. 4.

13 See, *supra,* footnote 2, at p. 4.

Besides carbon dioxide, methane and nitrous oxide, there are several gases and categories of gases that were not present in the atmosphere in pre-industrial times but now exist and contribute to global warming. These include CFCs, used often as refrigerants, and their more stratospheric-ozone-friendly replacements, HFCs. Fully fluorinated species, such as sulfur hexafluoride (SF_6) and tetrafluoromethane (CF_4), are present in the atmosphere in relatively small concentrations, but have extremely long life spans of 50,000 and 3,200 years each, also making them potent greenhouse gases.

Please see **Table 4.23-1**, below, which identifies each Kyoto Protocol greenhouse gas, the global warming potential of each gas, and the current atmospheric concentration of each gas.

Table 4.23-1
Kyoto Protocol Greenhouse Gases: GWP and Current Atmospheric Concentration

Gas	Chemical Formula	Global Warming Potential	Current Atmospheric Concentration	
Carbon Dioxide	CO_2	1	379	ppm
Methane	CH_4	21	1,774	ppb
Nitrous Oxide	N_2O	310	319	ppb
Hydrofluorocarbons	HFC-23	11,700	Values range from 1 to 10	ppt
	HFC-32	650		
	HFC-125	2,800		
	HFC-134a	1,300		
	HFC-143a	3,800		
	HFC-152a	140		
	HFC-227ea	2,900		
	HFC-236fa	6,300		
	HFC-4310mme	1,300		
Perfluorocarbons	CF_4	6,500	>70 (CF_4)	ppt
	C_2F_6	9,200		
	C_3F_8	7,000		
	C_4F_{10}	7,000		
	C_6F_{14}	7,400		
Sulfur Hexafluoride	SF_6	23,900	4	ppt

Source: ENVIRON, 2008.

d. The Effects of Global Warming

(1) Impacts, Generally

As discussed above, the IPCC has concluded that there is a scientific consensus that global climate change will increase the frequency of heat extremes, heat waves, and heavy precipitation events. Currently

accepted models predict that continued greenhouse gas emissions at or above current rates will induce more extreme climate changes during the 21st century than were observed during the 20th century. A warming of about 0.2 degree Celsius (°C) per decade is projected; and, even if the concentrations of all greenhouse gases and aerosols are kept constant at year 2000 levels, a further warming of about 0.1°C per decade is expected.

A faster temperature increase will lead to more dramatic, and more unpredictable, localized climate extremes. Other likely direct effects of global warming include an increase in the areas affected by drought, an increase in tropical cyclone activity and higher sea levels, as well as the continued recession of polar ice caps. There are already some identifiable signs that global warming is taking place. In addition to substantial ice loss in the Arctic, the top seven warmest years since the 1890s have been after 1997.[14] **Figure 4.23-2**[15] shows the rise of global temperatures, the global rise of sea level, and the loss of snow cover from 1850 to the present.

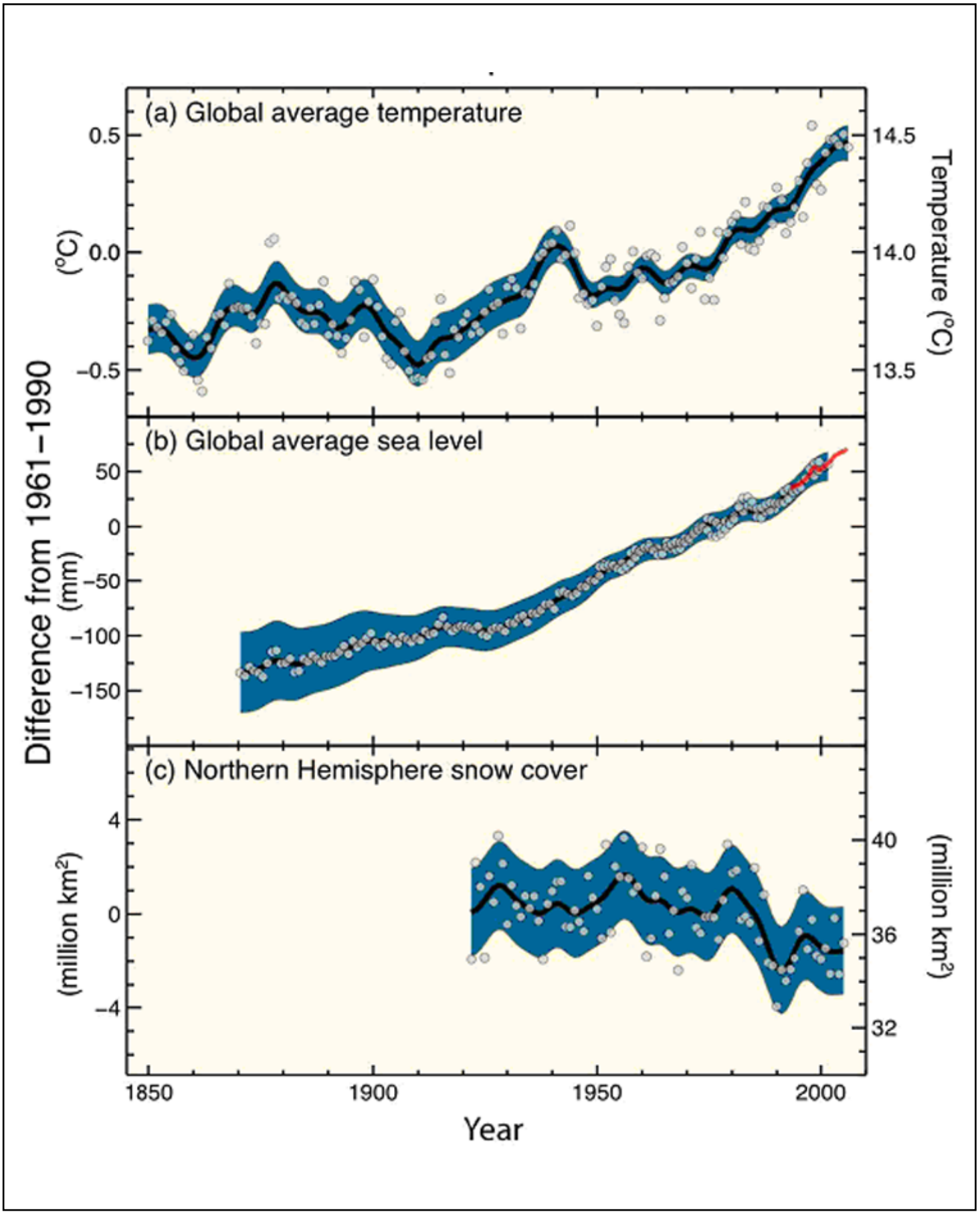
(2) Socioeconomic Impacts

Global temperature increases may negatively impact ecosystems, natural resources, and human health. Ecosystem structure and biodiversity will be compromised by temperature increases and associated climatic and hydrological disturbances. Further, the availability and quality of potable water resources may be compromised by increased salinisation of ground water due to sea-level rises, decreased supply in semi-arid and arid locations, and poorer water quality arising from increased water temperatures and more frequent floods and droughts. These impacts on freshwater systems, in addition to the effects of increased drought and flood frequencies, can reduce crop productivity and food supply.

In addition to compromising food and water resources, there are other means through which climatic changes associated with global warming can affect human health and welfare. Warmer temperatures can cause more ground-level ozone, a pollutant that causes eye irritation and respiratory problems. Ranges of infectious diseases will likely increase, and some areas will face greater incidences of illness and mortality associated with increased flooding and drought events.

14 Statistics from Intergovernmental Panel on Climate Change Working Groups I and II.

15 Adapted from *Climate Change 2007: The Physical Science Basis, Summary for Policymakers, supra*, footnote 2, Figure SPM-3.



SOURCE: Newhall Ranch RMDP - February 2007,

FIGURE **4.23-2**

Global warming trends and associated sea level rise and snow cover decrease

In its April 2007 Working Group II Report, the IPCC provided an assessment of the "current scientific understanding of impacts of climate change on natural, managed and human systems, the capacity of these systems to adapt and their vulnerability."[16] Here, the IPCC states that although some people will gain and some will lose because of global climate change, the overall change will be one of social and economic losses.

It is important to recognize that the climatic conditions experienced by the proposed project over its designed lifetime are likely to be substantially different from those observed over the past century. Consequently, it is useful to consider the implications of changing climatic conditions for project performance. Scenarios[17] for 2100 modeled in the IPCC Fourth Assessment Report (FAR) include:

Temperature Increase

- Low Emissions Scenario: 1.8°C (best estimate), with a range of 1.1°C to 2.9°C
- High Emissions Scenario: 4.0°C (best estimate), with a range of 2.4°C to 6.4°C

Sea Level Rise

- Low Emissions Scenario: 0.18 to 0.38 meter (range)
- High Emissions Scenario: 0.26 to 0.59 meter (range)

Potential implications for the proposed project include:

- *Sea level:* Rising sea levels are unlikely to directly impact the proposed project due to its distance from the coast and relative elevation.
- *Temperature:* Rising temperatures could have a variety of impacts, including stress on sensitive populations (e.g., sick and elderly), additional burden on building systems (e.g., demand for conditioning), and, indirectly, increasing emissions of GHGs and criteria pollutants associated with energy generation. It is not possible to reliably quantify these risks at this time.

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16 Available online at: http://www.ipcc-wg2.org/index.html

17 Future GHG emissions are the product of very complex and dynamic systems determined by driving forces such as demographic development, socio-economic development, and technological change. Their future evolution is highly uncertain. Scenarios are alternative images of how the future might unfold and are an appropriate tool with which to analyze how driving forces may influence future emission outcomes and to assess the associated uncertainties. These scenarios assist in climate change analysis, including climate modeling and the assessment of impacts, adaptation, and mitigation. However, the possibility that any single emissions path will occur as described in any given scenario is highly uncertain. More information on the IPCC's selection of scenarios is available at http://www.ipcc.ch/ipccreports/sres/emission/index.htm.

- *Precipitation:* Climate change is expected to alter seasonal and inter-annual patterns of precipitation. These changes continue to be one of the most uncertain aspects of future scenarios. For the proposed project, the most relevant direct impacts are likely to be changes in the timing and volume of storm water runoff and changes in demand for irrigation. It is not possible to reliably quantify the implications of these changes at this time.

- *Wildfire:* Changes in temperature and precipitation may combine to alter risks of wildfire. Changes in wildfire hazard have the potential to impact the proposed project; however, it is not possible to reliably quantify the implications of these changes at this time.

- *Water supply reliability:* Changes in temperature and precipitation may also influence seasonal and inter-annual availability of water supplies. Consequently, it is reasonable to consider that climate change may affect water supply reliability. It is not possible to reliably quantify these risks for the proposed project at this time.

(2) Impacts to California, Specifically

Global temperature increases may have a series of significant negative impacts on the health of California residents and the California economy.[18] One result of the higher temperatures caused by global warming may be compromised air quality. Specifically, warmer temperatures can cause more ground-level ozone, a pollutant that causes eye irritation and respiratory problems. Another impact may result due to California's primary reliance on snowmelt for its drinking water and much of the water used in irrigation during the summer. Global warming could alter the seasonal pattern of snow accumulation and snowmelt and threaten the availability of water. Climatic changes also would affect agriculture, a major California industry, which could result in economic losses.

The California Natural Resources Agency (CNRA) recently prepared a document that discusses the impacts of climate change upon California, as well as California's climate adaptation strategy. (See *California Climate Adaptation Strategy: Discussion Draft*, CNRA [August 2009].) Because climate change already is affecting California and current emissions will continue to drive climate change in the coming

18 For additional information regarding the impact of global climate change on California's water supply and sensitive biological resources, please see **Appendix 4.23** of this EIR. In the Appendix, a literature survey undertaken of global climate change and its effects on California's water supply and sensitive biological resources is presented for review. Ultimately, due to the lack of an established regulatory framework, and the general concurrence of the scientific and regulatory communities, additional study and evaluation is still required with respect to the impacts of global climate change on water supplies and sensitive biological resources; and, thus, the evaluation concludes that such impacts are too speculative to assess any further at this time. **Appendix 4.23** also contains a technical memorandum, prepared by GSI Water Solutions, Inc., regarding the *Potential Effects of Climate Change on Groundwater Supplies for the Newhall Ranch Specific Plan, Santa Clarita Valley, California* (March 18, 2008).

decades, regardless of any mitigation measured that may be adopted to reduce GHG emissions, the necessity of adaptation to the impacts of climate change is recognized by the state of California. Climate change risks are evaluated using two distinct approaches: (1) projecting the amount of climate change that may occur using computer-based global climate models, and (2) assessing the natural or human system's ability to cope with and adapt to change by examining past experience with climate variability and extrapolating this to understand how the systems may respond to the additional impact of climate change. A summary of CNRA's findings with respect to impacts and adaptation is presented below.

Impacts

- *Rising Temperatures:* CRNA noted that new projections predict a median probability of surface warming of 5.2 °C by 2100, which is higher than previous modeling completed in 2003. Researchers modeled temperature changes specifically related to California, and predicted greater temperature increases in summer than winter, and larger increases inland when compared to the coastal areas.

- *Tipping Elements:* CNRA identified "tipping elements" that bring about "abrupt changes that could push natural systems past thresholds beyond which they could not recover." According to CNRA, there are four main events that could bring about abrupt environmental changes, each of which has a particular tipping temperature at which the event is likely to occur. The consequence of crossing each threshold could cause a 7-12 m rise in sea level over the course of several centuries.

- *Extreme Natural Events:* CRNA listed extreme natural events that are likely to occur, including higher nighttime temperatures and longer, more frequent heat waves overall; 12-35 percent decrease in precipitation levels by mid- to late-21st century; increased evaporation and faster incidences of snowmelt that will increase drought conditions; and, more precipitation in the form of rain as compared to snow that will decrease water storage in California during the dry season and increase flood events during the wet season.

- *Precipitation Changes and Rivers:* CNRA stated that climate change will intensify California's "Mediterranean climate pattern," with the majority of annual precipitation occurring between November and March and drier conditions during the summer. This climate change will increase droughts and floods and will affect river systems.

- *Sea Level Rise:* CNRA stated that sea level rise can cause damage to coastal communities and loss of land. Current calculations of sea level rise from 1900 to 2000 estimate approximately 7 inches along the California coast.

- *Low Sea Ice Levels:* CNRA stated that substantial sea ice melting from Greenland and the West Antarctic Ice Sheet has the potential to further raise sea levels. The sea ice extent in the Western Nordic Seas (i.e., Greenland, Norway, and Iceland Seas) is at the lowest level observed in the last 800 years, the implication being that a substantial reduction in sea ice in the Arctic sea promotes alterations in atmospheric circulation and precipitation patterns that extend to the mid-latitudes (e.g., the California coast). Additionally, it was reported that the variations in sea ice extent are correlated with changes in sea surface temperatures and atmospheric and ocean heat transport from the North Atlantic.

- *Ocean Chemistry:* CRNA noted that an emerging effect from climate change may be acidification of the ocean, which will affect the ability of hard-shelled invertebrates to create their skeletal structures. The implications of this change include major losses to shellfish industries, and shifts in food resources for ocean fisheries. The primary contributing factors to oceanic acidification include increasing levels of CO_2 and weather pattern shifts; increases in CO_2 result in increased uptake by the oceans, which result in decreased pH (acidification), and weather pattern shifts change the amount of calcium carbonate being delivered by rivers from sources stored in rocks, which further exacerbates the ability of invertebrates to form calcified shells.

California-Specific Adaptation Strategies

- Appointment of a Climate Adaptation Advisory Panel;

- Improved water management in anticipation of reduced water supplies, including a 20 percent reduction in per capita water use by 2020;

- Consideration of project alternatives that avoid significant new development in areas that cannot be adequately protected from flooding due to climate change;

- Preparation of agency-specific adaptation plans, guidance or criteria by September 2010;

- Consideration of climate change impacts for all significant state projects;

- Assessment of climate change impacts on emergency preparedness;

- Identification of key habitats and development of plans to minimize adverse effects from climate change;

- Development of guidance by the California Department of Public Health by September 2010 for use by local health departments to assess adaptation strategies;

- Amendment of General Plans and Local Coastal Plans to assess climate change impacts and develop local risk reduction strategies by communities; and,

- Incorporation of climate change impact information into fire program planning by state fire fighting agencies.

e. Global, National, and State GHG Emissions Inventories

Worldwide emissions of GHGs in 2004 were 26.8 billion tonnes of CO_2e per year.[19] In 2007, the United States emitted about 7 billion tonnes of CO_2e, or about 24 tonnes per capita per year. Over 80 percent of the GHG emissions in the United States are comprised of CO_2e emissions from energy-related fossil fuel combustion.

In 2004, California emitted 0.492 billion tonnes of CO_2e, or about 7 percent of US emissions. If California were a country, it would be the 16th largest emitter of greenhouse gases in the world.[20] This large number is due primarily to the sheer number of people in California; compared to other states, California has one of the lowest per capita GHG emission rates in the country, which is due to California's higher energy efficiency standards, its temperate climate, and the fact that it relies on out-of-state energy generation.

In 2004, 81 percent of greenhouse gas emissions (in CO_2e) from California were comprised of carbon dioxide emissions from fossil fuel combustion, with 4 percent comprised of CO_2 from process emissions. Methane and nitrous oxide accounted for 5.7 percent and 6.8 percent of total CO_2e respectively, and high GWP gases[21] accounted for 2.9 percent of the CO_2e emissions. Transportation, including industrial and residential uses, is by far the largest end-use category of GHGs in California.[22]

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19 Sum of Annex I and Annex II countries, without counting Land-Use, Land-Use Change and Forestry (LULUCF), available online at http://unfccc.int/ghg_emissions_data/predefined_queries/items/3814.php. For countries that 2004 data was unavailable, the most recent year was used. This report also is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.

20 *Inventory of California Greenhouse Gas Emissions and Sinks: 1990 to 2004*, California Energy Commission, available online at http://www.climatechange.ca.gov/inventory/index.html. This inventory also is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.

21 Such as HFCs and PFCs.

22 As of 2004, fossil fuel consumption in the transportation sector was the single largest source of California's GHG emissions (41.2 percent), with the industrial sector as the second-largest source (22.8 percent), followed by electrical production from both in-state and out-of-state sources (19.6 percent), agricultural and forestry (8.0 percent), and other activities (8.4 percent). (*Climate Action Team Report*, *supra* footnote 1, pp. 9-10.)

4. THE REGULATORY SETTING

The following discussion summarizes the relevant federal and state GHG emissions legal framework, the regulatory efforts and policies of the local jurisdiction (*i.e.*, Los Angeles County), and other guidance.

a. Federal Authorities and Administering Agencies

With respect to the Executive Branch, in 2002, former President George W. Bush established a national policy goal to reduce the GHG emission intensity (tonnes of GHG emissions per million dollars of gross domestic product) of the United States economy by 18 percent by 2012. However, binding caps and/or reductions did not accompany this goal; rather, the U.S. Environmental Protection Agency (USEPA) administers a variety of voluntary programs and partnerships with GHG emitters. Such programs include the "Climate Leaders" program, in which companies create long-term GHG emission record-keeping and reduction strategies, and the high global warming potential gas voluntary programs, in which the USEPA partners with industries producing and utilizing synthetic gases to reduce emissions of particularly potent GHGs.

In July 2008, former President Bush, and other members of the Group of 8 (*i.e.*, Japan, Germany, Britain, France, Italy, Canada, Russia), also pledged to move towards a low-carbon society by cutting GHG emissions in half by 2050. The pledge does not clarify what year the 2050 cuts will be measured from, and does not set a goal for cutting emissions over the next decade.

President Barack Obama has expressed support for a national cap-and-trade program.[23] However, while companion bills presently are before Congress that would provide for a nationalized cap-and-trade program – the House of Representatives' Waxman-Markey bill and the Senate's Boxer-Kerry bill – to date, a program has not been adopted.

With that said, the Consolidated Appropriations Act of 2008 (H.R. 2764), sponsored by Senators Feinstein and Boxer, included provisions requiring the establishment of mandatory GHG reporting requirements for all sectors of the economy. Accordingly, on September 22, 2009, USEPA Administrator Jackson signed a final rule mandating annual reporting of GHG emissions by suppliers of fossil fuels or industrial

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23 Market-based, or cap-and-trade, systems work by establishing a cap on the total amount of GHG emissions that are allowed in a compliance period, and then either distribute emissions allowances to emitting facilities, allow emitting facilities to buy allowances from an auction system, or some combination of the two. Typically, only large emitters participate in cap-and-trade systems. All emitting facilities in the system must submit an allowance for each unit of carbon dioxide equivalent (CO2e) they produce. If a facility is emitting more CO2e than they have covered by allowances, they must choose between spending money to invest in CO2e-mitigating technologies to reduce their emissions or purchasing additional allowances from facilities that are emitting less CO2e for which they have allowances. The goal of these systems is to achieve a specified overall reduction in emissions in the most cost-effective way possible.

greenhouse gases, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions.

A fairly recent U.S. Supreme Court decision also affects federal action on climate change (*Massachusetts v. Environmental Protection Agency* (2007) 549 U.S. 497). In that case, the Court ruled that the USEPA is authorized under the Clean Air Act (CAA) to regulate CO_2e emissions from new motor vehicles. While the Court did not mandate that the USEPA enact regulations to reduce GHG emissions, it found that the USEPA could only avoid taking action if it found that GHGs do not contribute to climate change or if it offered a "reasonable explanation" for not determining that GHGs contribute to climate change. The Court rejected the USEPA's arguments that: (1) voluntary programs already in place were sufficient to address global warming; and (2) the USEPA should not take action on climate change because it may conflict with the initiatives or negotiations of the executive branch of the federal government.

On May 14, 2007, in response to this ruling, the former Bush Administration issued an executive order directing the USEPA and Departments of Transportation and Energy to work together to establish regulations by 2008 that reduce GHG emissions from motor vehicles, non-road vehicles, and non-road engines. Further, on December 19, 2007, the Energy Independence and Security Act of 2007 (EISA) was signed into law; EISA increased the Corporate Average Fuel Economy (CAFE) standards for the combined fleet of cars and light trucks, requiring an increase to 35 miles per gallon by model year 2020.[24] EISA also requires the establishment of interim standards (from 2011 to 2020) that will be the "maximum feasible average fuel economy" for each fleet. On October 10, 2008, the National Highway Traffic Safety Administration (NHTSA) released a final environmental impact statement analyzing proposed interim standards for model years 2011 to 2015 passenger cars and light trucks, and issued a final rule for model year 2011 on March 23, 2009.[25]

Following the release of NHTSA's final rule for model year 2011, on May 19, 2009, President Obama announced a national policy for fuel efficiency and emissions standards in the US auto industry. The proposed rulemaking, a collaboration between the Department of Transportation and USEPA, applies to passenger cars, light-duty trucks, and medium duty passenger vehicles built in model years 2012 through 2016. If finalized, the proposed rule would surpass the 2007 CAFE standards and require an average fuel economy standard of 35.5 mpg in 2016.

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[24] In addition to setting increased CAFE standards for motor vehicles, EISA also addresses the national renewable fuel standard, appliance and lighting efficiency standards, and building energy efficiency. EISA also addresses energy savings in government and public institutions, and promotes research for alternative energy sources, carbon capture, international energy programs, and "green" jobs.

[25] See http://www.nhtsa.dot.gov/portal/site/nhtsa/menuitem.43ac99aefa80569eea57529cdba046a0/

Also in response to the Supreme Court's decision, on April 24, 2009, the USEPA issued a proposed endangerment finding, stating that high atmospheric levels of greenhouse gases "are the unambiguous result of human emissions, and are very likely the cause of the observed increase in average temperatures and other climatic changes." The USEPA further found that "atmospheric concentrations of greenhouse gases endanger public health and welfare within the meaning of Section 202 of the Clean Air Act." The finding itself does not impose any requirements on industry or other entities. The public comment period for this proposed endangerment finding ended June 23, 2009, and the finding is now under final review.[26]

b. Regional Authorities and Administering Agencies

In the absence of federal action to control GHG emissions, several regional agreements have been established among various states. The agreements often develop GHG inventory and reporting standards, and set their own limits on acceptable emission levels.

One such agreement is the Western Regional Climate Action Initiative (the Initiative), entered into by Washington, Oregon, California, Arizona, Utah and New Mexico, as well as the Canadian provinces British Columbia and Manitoba. On August 22, 2007, the Initiative issued its "Statement of Regional Goal," which strives to secure "an aggregate reduction [of GHG emissions] of 15 percent below 2005 levels by 2020."[27] The regional goal is consistent with Short Term (2010-12), Medium Term (2020) and Long Term (2040–2050) goals for each member state and province. The Initiative is developing a regional, market-based cap-and-trade program, and California is expected to participate in that program.

c. State Authorities and Administering Agencies

The California legislature also has adopted several climate change-related bills in the past seven years. These bills aim to control and reduce the emission of GHGs in order to slow the effects of global climate change. In addition, Governor Schwarzenegger has issued several executive orders directed at global climate change-related matters.

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26 The proposed endangerment finding is available at http://www.epa.gov/climatechange/endangerment.html.

27 See *Western Climate Initiative Statement of Regional Goal*, Western Climate Initiative, available online at http://www.westernclimateinitiative.org/ewebeditpro/items/O104F13006.pdf (last visited February 9, 2009). (This document is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.)

(1) Executive Orders

On June 1, 2005, Governor Schwarzenegger signed Executive Order No. S-3-05, which set the following GHG emission reduction targets for California: by 2010, reduce GHG emissions to 2000 levels; by 2020, reduce GHG emissions to 1990 levels; and, by 2050, reduce GHG emissions to 80 percent below 1990 levels. Executive Order No. S-3-05 also instructed the Secretary of the California Environmental Protection Agency to coordinate with other state agencies and report to the Governor and State Legislature by January 2006 (and biannually thereafter) on progress made toward meeting the specified GHG emission reduction targets and the impacts of global climate change on California.

On January 18, 2007, Governor Schwarzenegger issued Executive Order No. S-01-07, which requires a 10 percent or greater reduction in the average fuel carbon intensity for transportation fuels in California regulated by the California Air Resources Board (CARB). On April 23, 2009, CARB adopted a low carbon fuel standard.

On November 14, 2008, Governor Schwarzenegger issued Executive Order No. S-13-08, which instructs various state agencies to come up with plans on how to address the expected effects of climate change in California, particularly sea level rise. The Executive Order specifically required CNRA, by June 30, 2009, to develop a state climate adaptation strategy. CNRA's discussion draft of the Executive Order-mandated adaptation strategy was discussed above when summarizing the existing science.)

On November 17, 2008, Governor Schwarzenegger issued Executive Order No. S-14-08, which mandates that retail suppliers of electric services increase their procurement from eligible renewable energy resources to 33 percent by 2020. On September 15, 2009, Governor Schwarzenegger issued Executive Order No. S-21-09, which requires CARB, pursuant to its AB 32 authority, to adopt a regulation consistent with the 33 percent renewable energy target established in Executive Order No. S-14-08 by July 31, 2010.

(2) Assembly Bill 1493

Assembly Bill 1493 (AB 1493) was chaptered into law on July 22, 2002. AB 1493 required CARB to adopt regulations, by January 1, 2005, that would result in the achievement of the "maximum feasible" reduction in GHG emissions from vehicles used in the state primarily for noncommercial, personal transportation.[28] As enacted, the AB 1493 regulations were to become effective January 1, 2006, and apply to passenger vehicles and light-duty trucks manufactured for the 2009 model year or later.

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28 AB 1493 prohibited CARB from requiring: (1) any additional tax on vehicles, fuel, or driving distance; (2) a ban on the sale of certain vehicle categories; (3) a reduction in vehicle weight; or (4) a limitation on or reduction of speed limits and vehicle miles traveled.

Although the USEPA traditionally regulates tailpipe emissions, CARB maintains some regulatory authority due to the severe air quality issues in California. In fact, pursuant to the federal CAA, CARB may implement stricter regulations on automobile tailpipe emissions than the USEPA, provided a waiver from the USEPA is obtained.

In September 2004, CARB adopted the AB 1493-mandated regulations and incorporated those standards into the Low-Emission Vehicle (LEV) program. The regulations set fleet-wide average GHG emission requirements for two vehicle categories: passenger car/light duty truck (type 1) and light-duty truck (type 2). The standards took into account the different global warming potentials of the GHGs emitted by motor vehicles, and were scheduled to phase in during the 2009 through 2016 model years. If implemented, these regulations would produce a nearly 30 percent decrease in GHG emissions from light-duty vehicles by 2030.

In December 2004, these regulations were challenged in federal court by the Alliance of Automobile Manufacturers, who claimed that the regulations attempted to regulate vehicle fuel economy, a matter that lies within the exclusive jurisdiction of the federal government. In a decision rendered in December 2007, the U.S. District Court for the Eastern District of California rejected key elements of the automakers' challenge and concluded that CARB's regulations were neither precluded nor preempted by federal statutes and policy (*Central Valley Chrysler-Jeep, Inc. v. Goldstone*, 529 F.Supp. 2d 1751 (E.D. Cal. 2007).

While this litigation was pending, in December 2005, CARB submitted a waiver application to the USEPA. After waiting nearly two years for a decision from the USEPA, in November 2007, California filed a lawsuit alleging that the USEPA failed to consider the waiver application in a timely fashion. The USEPA's chief promised to issue a decision on the application by December 31, 2007, and, in mid-December 2007, the USEPA's chief fulfilled his promise by issuing a decision denying California's waiver application. The denial was based on the USEPA's determination that the new federal automobile fuel economy requirements would achieve what California sought to accomplish *via* the AB 1493 regulations.

The denial of California's waiver application precluded as many as 16 other states from implementing tailpipe emission regulations similar to those adopted by California under AB 1493. In response to this denial, California filed a lawsuit, with the support of 15 other states, challenging the USEPA's decision.

On January 26, 2009, President Obama issued a presidential memorandum directing the Administrator of the USEPA to reconsider California's waiver application. On June 30, 2009, the USEPA granted California's waiver application, reversing its prior determination and authorizing CARB to implement the AB 1493 regulations.

(3) Assembly Bill 32

In August 2006, the California Legislature adopted the California Global Warming Solutions Act of 2006. Also known as Assembly Bill 32 (AB 32), the new law designates CARB as the state agency responsible for monitoring and regulating sources of GHG emissions and for devising rules and regulations that will achieve the maximum technologically feasible and cost-effective GHG emissions reductions. Specifically, AB 32 seeks to achieve a reduction in statewide GHG emissions to 1990 levels by 2020. While AB 32 sets out a timeline for the adoption of measures to evaluate and reduce GHG emissions across all source categories, it does not articulate these measures itself; instead, these measures are being determined in subsequent regulatory processes.

Under AB 32, by January 1, 2008, CARB was required to determine the amount of statewide GHG emissions in 1990, and set the 2020 limit equivalent to that level. In that regard, CARB determined that the 1990 GHG emissions level (and the 2020 statewide cap) was 427 million tonnes of CO_2e. CARB further determined that the state must reduce its emissions inventory by 169 million tonnes of CO_2e to achieve the AB 32 reduction mandate (*i.e.*, 1990 levels by 2020).

On December 6, 2007, CARB adopted regulations, pursuant to AB 32, requiring the largest facilities in California to report their annual GHG emissions. The facilities identified in the mandatory reporting regulations include industrial and commercial stationary sources, such as electricity generating facilities and retail providers; oil refineries; hydrogen plants; cement plants; cogeneration facilities; and industrial sources that emit more than 25,000 tonnes of CO_2e per year from an on-site stationary source.

CARB also has adopted its first set of GHG emission reduction measures, known as the "discrete early action measures." These measures either are currently underway or are to be initiated by CARB in the 2007-2012 timeframe. The discrete early action measures cover a number of sectors, including transportation, fuels, and agriculture, and address issues such as a low carbon fuel standard, landfill methane capture, and consumer products with high global warming potentials.

As mandated by AB 32, in December 2008, CARB adopted the *Climate Change Proposed Scoping Plan: A Framework For Change* (October 2008).[29] The Scoping Plan contains a comprehensive set of actions designed to reduce overall carbon emissions in California, improve the environment, reduce the state's dependence on oil, diversify energy sources, save energy, and enhance public health while creating new jobs and enhancing growth in California's economy. Key elements of the Scoping Plan include: (1) expansion and strengthening of existing energy efficiency programs, and building and appliance standards; (2) expansion of the renewable portfolio standard to 33 percent; (3) development of a regional

29 *Climate Change Proposed Scoping Plan: A Framework for Change*, California Air Resources Board (adopted December 2008). (This document is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.)

cap-and-trade program (*i.e.*, participation in the Western Climate Initiative); (4) implementation of existing state laws and policies, including California's clean car standards, good movement measures, and the low carbon fuel standard; and (5) targeted fees to fund the long-term implementation of AB 32. The GHG emission reduction measures identified in the Scoping Plan adopted by the Board will be developed over the next three years and enforceable by 2012. By January 1, 2014 and every five years thereafter, CARB is required to update the Scoping Plan.

(4) Senate Bill 97

With respect to CEQA, the California Legislature passed Senate Bill 97 (SB 97), which addresses GHG analysis under CEQA, during the 2007 legislative session. The bill contains two components, the first of which exempts from CEQA the requirement to assess GHG emissions for the following projects: (a) transportation projects funded under the Highway Safety, Traffic Reduction, Air Quality, and Port Security Bond Act of 2006; and (b) projects funded under the Disaster Preparedness and Flood Prevention Bond Act of 2006.

SB 97's second component confirms that no CEQA guidelines presently exist to advise agencies and project applicants of whether a particular project may result in a potentially significant impact to global climate change. Accordingly, SB 97 required that the Office of Planning and Research (OPR), by July 1, 2009, develop and transmit to CNRA guidelines for the mitigation of GHG emissions and their effects. CNRA is required to adopt the regulations by January 1, 2010. (This second component of SB 97 is codified at Public Resources Code, section 21083.05.)

Notably, Governor Schwarzenegger issued a signing message when enacting SB 97 that is instructive as to the Governor's policy on global climate change, which includes a directive towards coordinating the efforts of various agencies to efficiently and fairly achieve GHG emissions reductions:

Current uncertainty as to what type of analysis of greenhouse gas emissions is required under [CEQA] has led to legal claims being asserted which would stop these important infrastructure projects. Litigation under CEQA is not the best approach to reduce greenhouse gas emissions and maintain a sound and vibrant economy. To achieve these goals, we need a coordinated policy, not a piecemeal approach dictated by litigation.

This bill advances a coordinated policy for reducing greenhouse gas emissions by directing the Office of Planning and Research and the Resources Agency to develop CEQA guidelines on how state and local agencies should analyze, and when necessary, mitigate greenhouse gas emissions.

On June 19, 2008, in light of its SB 97-mandated obligations, OPR issued a *Technical Advisory*, which provides lead agencies and project applicants with informal advice on how to conduct GHG emissions analysis in CEQA documents. OPR intends the *Technical Advisory* to be used on an interim basis only (*i.e.*, until OPR and CNRA accomplish their SB 97 mandates).[30] The *Technical Advisory*'s recommended approach notes that compliance with CEQA, for purposes of GHG emissions, entails three basic steps: (1) identification and quantification of GHG emissions; (2) assessment of the project's impact on climate change; and (3) identification and consideration of project alternatives and/or mitigation measures, if the project is determined to result in an individually or cumulatively significant impact.

In its *Technical Advisory*, OPR requested that CARB submit recommendations regarding the appropriate significance criteria to use in environmental documentation, prepared pursuant to CEQA, when evaluating GHG emissions and global climate change impacts. Accordingly, on October 24, 2008, CARB issued its *Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significance Thresholds for Greenhouse Gases under the California Environmental Quality Act* (*Preliminary Draft Staff Proposal*).[31] In the *Preliminary Draft Staff Proposal*, CARB proposed tiered significance criteria for two types of projects: (1) industrial; and (2) commercial/residential. With respect to commercial/residential projects, CARB proposed a four tiered criterion:

- Tier 1: Is the project exempt from further analysis under existing statutory or categorical exemptions? If yes, there is a presumption of less-than-significant impacts with respect to climate change.
- Tier 2: Does the project comply with a previously approved plan that addresses GHG emissions? (The plan must satisfy certain requirements (*e.g.*, be consistent with AB 32 and/or SB 375, the latter of which is discussed further below).) If yes, there is a presumption of less-than-significant impacts with respect to climate change.
- Tier 3: Does the project satisfy certain minimum performance standards relating to construction and operational activities, or include equivalent mitigation measures, *and* emit no more than a yet to be determined quantity of emissions? If yes, there is a presumption of less-than-significant impacts with respect to climate change.
- Tier 4: The project will have significant climate change impacts.

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30 See Technical Advisory -- CEQA and Climate Change: Addressing Climate Change Through California Environmental Quality Act (CEQA) Review, Governor's Office of Planning and Research, available online at http://opr.ca.gov/ceqa/pdfs/june08-ceqa.pdf (last visited February 9, 2009). (This document is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.)

31 See Preliminary Draft Staff Proposal: Recommended Approaches For Setting Interim Significance Thresholds For Greenhouse Gas Emissions Under The California Environmental Quality Act, California Air Resources Board, available online at http://www.arb.ca.gov/cc/localgov/ceqa/ meetings/102708/prelimdraftproposal102408.pdf (last visited February 9, 2009). (This document is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.)

CARB received public comment on the draft criteria. However, as of this time, CARB has suspended its work on the draft thresholds.

CNRA received OPR's recommended amendments to the CEQA Guidelines on April 13, 2009. On July 3, 2009, CNRA commenced the Administrative Procedure Act rulemaking process for certifying and adopting these amendments pursuant to Public Resources Code section 21083.05. During the process, CRNA will hold public hearings, receive oral comments, consider both written and oral comments, and publish the final rule, which will take into consideration comments made. In October 2009, CNRA issued revised proposed amendments to the CEQA Guidelines, which provide that lead agencies should consider the following factors when assessing the significance of impacts from GHG emissions on the environment:

- The extent to which the project increases or reduces GHG emissions relative to the existing setting.
- The extent to which the project exceeds a threshold of significance that the lead agency determines applies.
- The extent to which the project complies with requirements adopted to implement a plan for the reduction or mitigation of GHG emissions.

No specific methodologies for performing an assessment are indicated, but rather it is left to the lead agency to determine the appropriate methodologies in context of a particular project. The proposed amendments also indicate that lead agencies should consider all feasible means of mitigating greenhouse gas emissions that substantially reduce energy consumption or GHG emissions.

Among other things, CRNA noted in its Public Notice for the proposed amendments that impacts of GHG emissions should be considered in the context of a cumulative impact, rather than a project impact. The Public Notice states:

While the Proposed Amendments do not foreclose the possibility that a single project may result in greenhouse gas emissions with a direct impact on the environment, the evidence before [CRNA] indicates that in most cases, the impact will be cumulative. Therefore, the Proposed Amendments emphasize that the analysis of greenhouse gas emissions should center on whether a project's incremental contribution of greenhouse gas emissions is cumulatively considerable.

(5) Senate Bill 375

Senate Bill 375 (SB 375) was passed by the California Legislature on September 1, 2008, and chaptered into law on September 30, 2008. SB 375 requires CARB, working in consultation with California's

metropolitan planning organizations (MPOs), to set regional GHG reduction targets for the automobile and light truck sector for 2020 and 2035. CARB must provide each MPO with its reduction target by September 30, 2010. Each MPO then must incorporate the assigned GHG reduction target into its Regional Transportation Plan (RTP), which is used for long-term transportation planning, via a Sustainable Communities Strategy (SCS) or Alternative Planning Strategy (APS). Certain transportation planning and programming activities will need to be consistent with the SCS; however, SB 375 expressly provides that the SCS does not regulate the use of land, and further provides that local land use plans and policies (*e.g.*, general plan) are not required to be consistent with either the RTP or SCS.

SB 375 includes CEQA streamlining provisions for "transit priority projects," so long as the projects are consistent with the SCS. As defined in SB 375, a "transit priority project" shall: (1) contain at least 50 percent residential use, based on total building square footage and, if the project contains between 26 and 50 percent nonresidential uses, a floor area ratio of not less than 0.75; (2) provide a maximum net density of at least 20 dwelling units per acre; and (3) be within 0.5 mile of a major transit stop or high quality transit corridor.

(6) Energy Conservation Standards

The Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24), found in the California Code of Regulations, originally were established in 1978 in response to a legislative mandate to reduce California's energy consumption. Title 24 governs energy consumed by the built environment for commercial and residential buildings in California. This includes the HVAC system, water heating, and some fixed lighting. (Non-building energy use, or "plug-in" energy use, is not covered by Title 24.) The Title 24 standards are updated periodically to allow consideration and possible incorporation of new energy efficiency technologies and methods. The standards that would apply to the proposed project use were adopted on April 23, 2008, and will be in effect as of January 1, 2010.

Title 24 does not specify building dimensions (*e.g.*, size, height, or orientation) and provides significant flexibility for window types, window amounts, insulation choice, and other parameters. Software is often used to calculate whether a building is Title 24 compliant by quantifying the built-environment energy use per square foot per year and the Time Dependent Valuation (TDV) of the energy use per square foot per year.[32] Title 24 compliance is based on TDV and not on annual energy use.

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32 TDV energy use is a parameter that speaks to the electricity burden that a building puts on the electric system. In general, there is a larger demand on the electricity supply system during the day (peak times) than at night (off peak). This results in a higher stress on the electricity delivery system per marginal unit electricity delivered at peak times. Therefore, the calculation of TDV weights energy used at different times at different values. For instance, for the same annual electricity use, a building that uses more electricity during the peak mid-day electrical usage period will have a higher TDV value.

On July 17, 2008, the California Building Standards Commission also adopted a green building code for all new construction statewide.[33] This green building code represents the first-in-the-nation statewide program. Adherence to the code's provisions, which will take effect 180 days from its adoption, will be voluntary until 2010. The green building code is applicable to commercial and residential construction in the public and private sectors, as well as schools, hospitals and other public institutions. The code sets targets for energy efficiency, water consumption, dual plumbing systems for potable and recyclable water, diversion of construction waste from landfills, and the use of environmentally sensitive materials in construction and design.

The California Energy Commission (CEC) adopted the 2009 Appliance Efficiency Regulations (Title 20, CCR Sections 1601 through 1608), on December 3, 2008. The regulations include standards for both federally regulated appliances and non-federally regulated appliances, and exceed the standards imposed by other states and reduce GHG emissions by reducing energy demand.

(7) Other Reports

In 2007, the CEC issued a report, entitled *The Role of Land Use in Meeting California's Energy and Climate Change Goals* (CEC Land Use Report).[34] The CEC Land Use Report examines how land use decisions affect emissions associated with passenger vehicle use and building energy use.

The CEC Land Use Report notes that transportation accounts for 40 percent of California's GHG gases, thereby making transportation the single largest category of GHG emissions in the state of California. The GHG emissions are a function of Vehicle Miles Traveled (VMT) and the GHG emissions per mile traveled. As provided in the CEC Land Use Report, the VMT rate has been growing by 3 percent per year, and modeling undertaken by the California Department of Transportation estimates a similar growth rate in the future.[35] Although fuel efficiency may be influenced in the near future by federal and state regulations, the CEC Land Use Report observes that land use planners cannot easily affect the fuel efficiency of vehicles driven to and from new development.

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33 See *2007 California Green Building Standards Code*, Building Standards Commission, available online at http://www.bsc.ca.gov/prpsd_stds/default.htm (last visited February 9, 2009). (This document is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.)

34 See *The Role Of Land Use In Meeting California's Energy And Climate Change Goals*, California Energy Commission, available online at http://www.energy.ca.gov/2007publications/CEC-600-2007-008/CEC-600-2007-008-SF.PDF (last visited February 9, 2009). (This document is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.)

35 Estimates assume current population growth rates and the continuation of current development and transportation practices.

Nonetheless, the CEC Land Use Report also finds that: (1) "[r]esidential density may have the most profound effect on travel behavior, with higher density reducing vehicle miles traveled per capita;" and (2) "balancing jobs and housing in a given area may also reduce vehicle miles traveled per capita by shortening commute distances." At present time, the CEC Land Use Report notes that a standard method for predicting VMT has not been fully established and more research in the area is needed. In other words, a simple assessment of residential density and jobs-housing balance may not accurately predict VMT per capita at a development.

The CEC Land Use Report cites several energy saving project design features that developers have some control over, such as: (1) the on-site production of renewable energy; (2) the use of distributed electricity generation (DG); and (3) the orientation of residences in relation to the sun, so as to increase shade and incorporate roofs that reflect heat. The CEC Land Use Report also notes that different sizes and types of dwelling units influence the energy consumption of a home: "Residents of single-family detached housing, for example, are expected to consume 22 percent more primary energy than those of multifamily housing and 9 percent more than those of single-family attached housing."

d. Local Authorities and Administering Agencies

(1) Los Angeles County

In January 2007, the Los Angeles County Board of Supervisors adopted the Countywide Energy and Environmental Policy, which provides guidelines for sustainability and green building design within County departments. The Policy states that the County will join the California Climate Action Registry (CCAR) to establish goals for reducing GHG emissions. In addition, the policy incorporates a sustainable building program into County capital improvement projects and seeks to integrate energy efficient and sustainable designs into future County building plans. For example, as of January 16, 2007, the County's Capital Construction Program must achieve Leadership in Energy and Environmental Design (LEED) Silver Certification for new County (government) buildings greater than 10,000 square feet (sq ft).

Three ordinances also were adopted by the County of Los Angeles Board of Supervisors in late 2008, and became effective on January 1, 2009.[36] These ordinances include: (1) green building standards ordinance; (2) low-impact development standards ordinance; and, (3) drought-tolerant landscaping ordinance. With respect to green building, the County requires buildings to consume 15 percent less energy than authorized per the 2005 Title 24 standards. In addition, for building permit applications filed on or after

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[36] See L.A. County Green Building Program, Los Angeles County Department of Regional Planning, available online at http://planning.lacounty.gov/green (last visited February 9, 2009). (This document is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.)

January 1, 2010, the ordinance requires that LEED or LEED-equivalent ratings be met. In sum, the various requirements imposed by the green building ordinance conserve water, conserve energy, conserve natural resources, divert waste from landfills, minimize impacts to existing infrastructure, and promote a healthier environment. An excerpt from the green building ordinance is provided below; for more information, please see Title 21 and 22 of the LA County Code.

Los Angeles County Code, Section 22.52.2130

A. Table 22.52.2130-1 summarizes the general green building requirements for a project, which requirements shall be based on the building permit application filing date for the project.

. . .

TABLE 22.52.2130-1
GREEN BUILDING REQUIREMENTS FOR PROJECTS

	Project Description	**Building Permit Application Filed on or after January 1, 2009, but before January 1, 2010**	**Building Permit Application Filed on or after January 1, 2010**
1	Residential projects with < 5 dwelling units	County Green Building Standards	County Green Building Standards
2	Residential projects with ≥ 5 dwelling units	County Green Building Standards	County Green Building Standards & (GPR or CGB or LEED Certified)
3	Hotels/motels, lodging houses, non-residential, and mixed-use buildings, with a gross floor area of < 10,000 square feet	County Green Building Standards	County Green Building Standards
4	Hotels/motels, lodging houses, non-residential, and mixed-use buildings, and first-time tenant improvements, with a gross floor area of ≥ 10,000 square feet and < 25,000	County Green Building Standards	County Green Building Standards & LEED™ Certified
5	Hotels/motels, lodging houses, non-residential, and mixed-use buildings, and first-time tenant improvements, with a gross floor area of ≥ 25,000 square feet	County Green Building Standards	County Green Building Standards & LEED™ Silver
6	High-rise buildings > 75 feet in height	County Green Building Standards	County Green Building Standards & LEED™ Silver

C. County Green Building Standards.

1. Energy Conservation. All projects shall be designed to consume at least fifteen (15) percent less energy than allowed under the 2005 Update to the California Energy Efficiency Standards . . .

2. Outdoor Water Conservation.

> *a. A smart irrigation controller shall be installed for any area of a lot that is landscaped or designated for future landscaping.*
>
> *b. All landscaped areas shall meet the drought-tolerant requirements set forth in Part 21 of Chapter 22.52.*

3. Indoor Water Conservation. All tank-type toilets installed in residential projects containing five or more dwelling units regardless of gross floor area, or in hotels/motels, lodging houses, non-residential, and mixed-use buildings with a gross floor area of at least 10,000 square feet shall be high-efficiency toilets (maximum 1.28 gallons/flush).

4. Resource Conservation.

> *a. A minimum of 50 percent of non-hazardous construction and demolition debris by weight from all residential projects containing less than five dwelling units regardless of gross floor area, or from hotels/motels, lodging houses, non-residential, and mixed-use buildings with a gross floor area of less than 10,000 square feet shall be recycled and/or salvaged for reuse.*
>
> *b. A minimum of 65 percent of non-hazardous construction and demolition debris by weight from all residential projects containing at least five dwelling units regardless of gross floor area, or from hotels/motels, lodging houses, non-residential, and mixed-use buildings with a gross floor area of at least 10,000 square feet shall be recycled and/or salvaged for reuse.*

. . .

5. Tree Planting.

> *a. For each lot containing a single-family residence, a minimum of two 15-gallon trees shall be planted and maintained, at least one of which shall be from the drought-tolerant plant list. The satisfaction of this requirement may be used to fulfill other tree-planting requirements of this Title 22.*
>
> *b. For each lot containing a multi-family building, a minimum of one 15-gallon tree shall be planted and maintained for every 5,000 square feet of developed area, at least fifty (50) percent of which shall be from the drought-tolerant plant list. The satisfaction of this requirement may be used to fulfill other tree-planting requirements of this Title 22.*
>
> *c. For each lot containing a hotel/motel, lodging houses, and non-residential buildings, a minimum of three 15-gallon trees shall be planted and maintained for every 10,000 square feet of developed area, at least sixty-five (65) percent of which shall be from the drought-tolerant plant list. The satisfaction of this requirement may be used to fulfill other tree-planting requirements of this Title 22.*

. . .

D. Additional Green Building Requirements for Certain Projects After January 1, 2010. In addition to the green building requirements set forth in subsections C.1 through C.5, this subsection sets forth green building requirements for certain projects, described below, where the building permit application for such project is filed on or after January 1, 2010.

1. For a residential project containing five (5) or more dwelling units, the project shall achieve GPR, CGB, or LEED™ certification or, at the option of the applicant, shall achieve the equivalency of any such certification, as determined by Public Works.

2. For a hotel/motel, lodging house, non-residential or mixed-use building, or first-time tenant improvement, with a gross floor area of at least 10,000 square feet but less than 25,000 square feet, the project applicant shall retain a LEED™ accredited professional or other green building professional, approved by the Director and the Director of Public Works, to be part of the project design team. In addition, the project shall achieve the equivalency of LEED™ certification, either through USGBC certification or through an equivalency determination by Public Works. The building design submitted to Public Works shall show all of the building elements that will be used to achieve such certification or such equivalency determination.

3. For a hotel/motel, lodging house, non-residential or mixed-use building, or first-time tenant improvement project, with a gross floor area greater than 25,000 square feet or for a high-rise building greater than seventy-five (75) feet in height, the project applicant shall retain a LEED™ accredited professional or other green building professional, approved by the Director and the Director of Public Works, to be part of the project design team. In addition, the project shall achieve the equivalency of a LEED™ silver certification, either through USGBC certification or through an equivalency determination by Public Works. The building design submitted to Public Works shall show all of the building elements that will be used to achieve such certification or such equivalency determination.

. . .

(2) South Coast Air Quality Management District Significance Threshold

In the spring of 2008, the SCAQMD convened a stakeholders working group in connection with its development of a CEQA significance threshold for GHG emissions. In December 2008, SCAQMD adopted a threshold for projects where it is the lead agency under CEQA (*e.g.*, stationary source projects; air quality management plans and regulations).[37] With respect to residential and commercial projects, in order to achieve a policy objective of capturing 90 percent of GHG emissions from new residential and

[37] See *Greenhouse Gases (GHG) CEQA Significance Thresholds*, South Coast Air Quality Management District, available online at http://www.aqmd.gov/ceqa/handbook/GHG/GHG.html (last visited February 9, 2009). (This document is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.)

commercial projects and implement a "fair share" approach, SCAQMD staff has proposed combining performance standards and screening thresholds. The performance standards suggested have primarily focused on energy efficiency measures beyond Title 24 and an undetermined screening level of tonnes CO_2e per year based on direct operational emissions. Above this screening level, project design features designed to reduce GHGs must be implemented to reduce the impact to below a level of significance. SCAQMD staff is performing additional analyses to further define the performance standards and quantitative screening level, such that at this time the proposed thresholds are still in draft form.

e. Other Guidance Addressing GHG Emission Inventories

The Greenhouse Gas Protocol Initiative is a multi-stakeholder partnership of businesses, non-governmental organizations (NGOs), governments, and others convened by the World Resources Institute (WRI), a US-based environmental NGO, and the World Business Council for Sustainable Development (WBCSD), a Geneva-based coalition of 170 international companies. The Greenhouse Gas Protocol Initiative prepared a step-by-step guide for companies to use in quantifying and reporting their GHG emissions.

WRI categorizes emissions into three scopes: Scope 1 – direct GHG emissions; Scope 2 – electricity-related indirect GHG emissions; and Scope 3 – other indirect GHG emissions. These classifications indicate decreasing control on the company's part relative to GHG emissions. In other words, the GHGs that are produced directly from the company's operations are within Scope 1; the company has a great deal of control over those emissions. Scope 2 covers GHG emissions that result from the company's electricity use. While the company has a great deal of control over the amount of electricity use, it does not control the GHG intensity of electricity production. Finally, the company has little control over Scope 3 emissions, which include emissions resulting from activities such as an employee's work commute.

Scope 1: Direct GHG Emissions

> Direct GHG emissions occur from sources that are owned or controlled by the company, for example, emissions from combustion in owned or controlled boilers, furnaces, vehicles, *etc.*; emissions from chemical production in owned or controlled process equipment.

The only emissions that would result from the proposed project that might be considered Scope 1 emissions are construction emissions and emissions associated with the loss of carbon sequestration capacity via vegetation removal. These are the only emissions over which the project applicant has direct control.

Scope 2: Electricity-Related Indirect GHG Emissions

> Scope 2 accounts for GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated.

Although electricity consumption is accounted for in the proposed project's GHG emissions inventory, the electricity would be consumed by the eventual occupants of the residential and nonresidential buildings facilitated by approval of the proposed project. The proposed project itself will not purchase this electricity. Therefore, the electricity-related emissions associated with the proposed project are considered to fall within Scope 3, as described below.

Scope 3: Other Indirect GHG Emissions

> Scope 3 is an optional reporting category that allows for the treatment of all other indirect emissions. Scope 3 emissions are a consequence of the activities of the company, but occur from sources not owned or controlled by the company. Some examples of scope 3 activities are extraction and production of purchased materials; transportation of purchased fuels; and use of sold products and services.

All emissions, other than the construction-related and vegetation removal-related emissions discussed above, quantified in this inventory would likely be considered Scope 3. Residents and users of the development facilitated by the proposed project would not be owned or controlled by the project applicant. Although, the project applicant is unable to restrict the amount of electricity uses, miles driven, *etc.*; however, as discussed above, certain aspects of the development can influence these issues.

5. PROPOSED PROJECT IMPROVEMENTS

Landmark Village is a proposed mixed-use community that is part of the approved Newhall Ranch Specific Plan area, located in northern, unincorporated Los Angeles County within the Santa Clarita Valley Planning Area. The Landmark Village community would consist of 1,444 residences, including 308 single-family homes and 1,136 multi-family units, as well as an elementary school, community park, 1,033,000 square feet of commercial and mixed-use area, fire station, extensive trail system, transit improvements (including a park and ride/future transit station lot), additional private recreation, and open space areas. The proposed site for Landmark Village is located directly adjacent to the Valencia Commerce Center, one of the largest employment centers in the Santa Clarita Valley.

6. PROJECT IMPACTS

The inhabitants of residential developments and users of commercial and municipal buildings use electricity, heating, and motor vehicle transportation, all of which emit GHGs. The most significant GHG emissions resulting from residential developments include carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O). CO_2 is considered the most important GHG due primarily to the large amount of emissions produced by fossil fuel combustion, especially for the generation of electricity and powering of motor vehicles. CH_4 and N_2O also are emitted, though their emissions are much less significant than CO_2. CH_4 is emitted from the transmission, storage, and incomplete combustion of natural gas.

Accordingly, this section inventories and assesses the significance of GHG emissions from Landmark Village during construction and at buildout. This inventory includes some emissions that are within the control of the project applicant, such as grading and the placement of utilities; some emissions that are within the control of the individuals building the residential and commercial buildings, such as construction emissions; and some emissions in which control over emissions is shared by the developers and the residents, such as energy use in the built environment and traffic emissions.

Furthermore, at this stage of development, the exact design of the homes, businesses, and facilities to be located on the Landmark Village project site are not precisely known. However, estimates of the types of buildings and facilities proposed for Landmark Village site can serve as guidance for developing a first-order estimate of the Landmark Village project's anticipated GHG emissions. Because there are buildings planned for the future with unknown occupants, average current behavior is assumed. However, actual future emissions of the site will depend heavily upon the future homeowners' and business owners' habits (and are beyond the control of the project applicant).

a. Impact Significance Criteria

At present time, no relevant federal, state or local agencies have adopted applicable significance thresholds for the analysis of the proposed project's GHG emissions. (See *State CEQA Guidelines*, sec. 15064.7, subd. (b).) While many public agencies adopt regulatory standards as thresholds, the *State CEQA Guidelines* do not require adoption of regulatory thresholds. (*Ibid.* at subd. (a).)

For purposes of this EIR, the County has determined it is appropriate to rely on AB 32 as a benchmark and use the statute to inform their judgment as to whether the proposed project's GHG emissions would result in a significant impact. (See *State CEQA Guidelines*, sec. 15064, subd. (f)(1).) Accordingly, the following significance criterion is used to assess impacts:

Will the project's GHG emissions impede compliance with the GHG emissions reductions mandated in AB 32?

While SB 97 requires the *State CEQA Guidelines* to be amended to address global climate change, those revisions are not required to be adopted until January 1, 2010 (see Pub. Resources Code, sec. 21083.05); as of this writing, only draft proposed revisions are being circulated and considered by CNRA. With that said, the significance criterion identified above currently is consistent with CNRA's proposed amendments to the *State CEQA Guidelines* (issued in January 2009).

b. Emissions Estimation Methodology

(1) Emissions Estimation Guidance

This inventory was developed using guidance from two government-sponsored organizations: (i) CCAR, which was established by the California Legislature to assist willing parties in estimating and recording their GHG emissions to use as a baseline for meeting future emissions reduction requirements; and, (ii) IPCC, which publishes methodology reports that include relevant emission factors and specific scientific data that can be used to estimate GHG emissions from various activities.

(2) Emissions and Energy Use Studies

For estimating emissions based on electrical and natural gas energy use, literature information on patterns of energy use must often be employed. Studies commissioned by the United States Energy Information Administration (EIA) and CEC provide data on energy use patterns associated with municipal activities, natural resource distribution, and other activities that would take place in Landmark Village. These data were used to estimate energy use patterns which were applied to the specific characteristics of Landmark Village to estimate GHG emissions. In addition to EIA and CEC studies, studies performed by individual municipalities or scientific organizations also were used.

(3) Emissions Estimation Software

CARB, SCAQMD, and other public and private organizations have developed several software programs to facilitate the calculation of emissions from construction, motor vehicles, and urban developments by streamlining emissions estimation from these sources. This inventory was developed using several models to estimate GHG emissions from the Landmark Village development. These are the OFFROAD2007 model, the EMFAC model, the URBEMIS model, the Building America Research Benchmark Definition (BARBD), and the Micropas model. The features of each of these models are described below.

- OFFROAD – OFFROAD2007 is the most recent version of a model developed by CARB to estimate the activity and emissions of off-road mobile emissions sources, such as construction equipment. OFFROAD contains a database of default values for horsepower, load factor, and hours per day of operation and can calculate emission factors based on the type of equipment and year of use.

- EMFAC – EMFAC, also developed by CARB, compiles real fleet data on the county-level for the state of California, including vehicle model year distributions, vehicle class (e.g., light-duty auto (LDA), medium-duty truck, heavy-heavy-duty truck) distributions, and emission rate information to generate fleet-average emission factors for most criteria pollutants and CO_2. EMFAC2007 is the newest version of the program. Emission factors from EMFAC depend on the vehicle class, vehicle technology, speed, year of operation, average ambient air temperature, and relative humidity.

- URBEMIS – The URBEMIS software was created by SCAQMD, although it is used by other air districts as well. It estimates emissions associated with different aspects of urban development. The Operational Data module in URBEMIS calculates emissions from mobile sources operating during the use of a development based on emission factors from EMFAC and traffic use information specific to a development. Mobile source emissions during the construction phase are calculated separately in the construction module of URBEMIS. URBEMIS provides county, air district / air basin, or state wide averages for number of daily trips per housing unit and per student at an elementary school in the absence of more specific information from traffic engineers. URBEMIS also provides air district-specific default values for vehicle fleet characteristics (vehicle class distribution and technology categories) and travel conditions (average trip length, trip speed, and relative frequency of each type of trip). URBEMIS (Versions 9.2.2 and 9.2.4), uses EMFAC2007 emission factors and calculates CO_2 emissions using District-specific default parameters for various inputs including vehicle fleet characteristics and travel conditions.

  In addition to mobile source emissions, URBEMIS can also calculate emissions associated with the construction phase of a development and emissions from area sources, such as fireplaces, once the development is operational. The URBEMIS construction module enables separate emissions calculations from each of the three typical stages of any construction project: demolition, site grading, and building construction. Based on the timing of construction and size of the development, URBEMIS defaults can be used to estimate emissions. Alternatively, the user can override these defaults by entering specific information about the construction project, such as what types and numbers of equipment are going to be used. In terms of area sources, URBEMIS is equipped to estimate GHG emissions from three types of GHG-emitting area sources based either on program defaults or more specific project information inputted by the user. These uses are natural gas fuel combustion, hearth fuel combustion, and landscaping equipment.

- Building America Research Benchmark Definition (BARBD) – BARBD was developed by the National Renewables Energy Laboratory (NREL) in consultation with home developers and builders within the Building America Program. This benchmark tool was developed to provide a means for tracking progress toward residential energy savings. The model includes a series of user profiles, intended to represent the behavior of a typical set of occupants. This benchmark is frequently updated with the most recent benchmark model having been released December 20, 2007. This information was used to determine the energy use for appliances and plug in energy use in homes.

- Micropas – Micropas 7.3 is a building energy efficiency modeling package approved by the CEC as a 2005 Title 24 residential alternative compliance method (ACM). The Micropas software calculates the

energy use per square foot per year and the Time Dependent Valuation (TDV) of the energy use per square foot per year to determine Title 24 compliance. Micropas is typically used for residential buildings.

c. Impact of Regulatory Developments on the Emissions Inventory

Promulgated regulations that would affect Landmark Village's emissions are quantitatively accounted for in this inventory. In particular, the Pavley Standards (AB 1493), EISA standards, and California's Renewable Portfolio Standard (RPS) would be in effect at build-out of the proposed project and, therefore, are accounted for in the emission calculations.

(1) Renewable Power Requirements

A major component of California's Renewable Energy Program is the RPS established under Senate Bills 1078 (Sher) and 107 (Simitian). Under the RPS, certain retail sellers of electricity are required to increase the amount of renewable energy (e.g., wind, small hydropower, solar, geothermal, biomass, and biogas) each year by at least 1 percent until they reach 20 percent by December 31, 2010. Of note, California is now considering an even higher goal of 33 percent by 2020, however, this goal has not been promulgated by statute or regulation.

The increase in renewable sources for electricity production would decrease indirect GHG emissions from Landmark Village because electricity production from renewable sources generally is considered carbon neutral. For purposes of this analysis, ENVIRON assumed that the production of electricity from these renewable sources would not produce any net emissions of CO_2.

The Landmark Village development would be supplied with power by Southern California Edison (SCE). The 2007 SCE carbon-intensity factor is 631 pounds of CO_2e per megawatt hour (MWh) and the 2004 SCE carbon-intensity factor is 679 pounds of CO_2e per MWh. These emission factors take into account the mix of energy sources used to generate electricity for SCE and the relative carbon intensities of these sources. SCE's 2007 mix of energy sources contains 13 percent of renewable sources. The RPS requires that utilities increase this mix to 20 percent by 2010. Thus, at full build out, it is anticipated that the carbon intensity factor will be 583 lb/MWh. Further, if the proposed 33 percent renewables target for 2020 is achieved, the SCE CO_2 emission factor would decrease even further to 488 pounds CO_2/MWh. The 33 percent renewables goal conservatively was not accounted for in this analysis because it has not yet become enforceable law.

(2) Vehicle Emissions Standards/Improved Fuel Economy

The two regulatory measures considered in this section are the vehicle GHG emission standards enacted under AB 1493 (Pavley) and the increased fuel economy standards under the EISA. The Pavley standards require GHG emission reductions from vehicles equivalent to approximately 30 percent by 2016. This accounts for an approximately 20 percent reduction in GHG emissions across the passenger car and light duty truck fleet in California in 2020. EISA requires that manufacturers achieve a CAFE standard of 35 mpg by 2020. USEPA is preparing a joint rulemaking to establish vehicle GHG emissions and new CAFE standards that are similar to Pavley through 2016.

d. Impact Analysis

Given the global nature of GHG impacts, it is difficult to understand what emissions are "new" in a global sense, from a given project. As described in this section, there are methods of estimating emissions from certain aspects of projects, such as that from the vehicle travel associated with the project. However, it is not entirely clear how to determine whether those emissions are truly additional in the global sense, or whether those emissions associated with a project would have occurred globally without the project, in any case.

Analyses for evaluating the airborne criteria pollutant impacts of new projects have already, in a sense, addressed the issue of what is "new." The calculation of criteria pollutant (oxides of nitrogen, sulfur oxides, carbon monoxide, volatile organic compounds, lead, and particulate matter) air quality emissions for use in EIRs has a long history. The goal of estimating emissions of criteria pollutants from projects is to understand whether there are significant new emissions in California's air basins, which have a limited ability to absorb additional criteria pollutant emissions without adverse air quality impacts. However, an identical approach for criteria pollutants and GHGs is not warranted because the impacts of GHG emissions are a function of their global concentrations, rather than local concentrations. Thus, the question of whether a project's GHG impacts are significant, both on a project basis and on a cumulative basis, must be asked based on global, rather than on basinwide considerations.

To understand how to put this in context for GHGs, it is useful to understand that the increase of new GHG emissions globally is caused by economic and population growth. Emissions growth rates are the highest among developing countries. While CO_2 emissions in developed countries were unchanged over the 1990–2002 period, emissions increased by 47 percent in developing countries during that same time period. Emissions in China grew about 50 percent during that time period—preliminary estimates show that China's GHG emissions increased 35 percent in 2003 and 2004 alone. This growth is due to the increasing demand for higher standards of living as a result of gross domestic product growth, requiring

more vehicles and electricity demand. Also, developing countries often lack the technology or capital to utilize energy efficient products or construct cleaner burning-power plants. Carbon dioxide emissions in China are growing slightly faster than primary energy use as the fuel mix increasingly favors coal, a high carbon fuel. China is projected to account for 39 percent of the projected increase in GHGs between 2004 and 2030, thereby overtaking the United States as the world's biggest emitter before 2010.[38]

In the developing world, GHG increases are directly tied to population growth. Therefore, it makes sense to consider operational emissions (including vehicular emissions) from new residences as growth, as residences are rarely removed from the housing supply once constructed. There are exceptions, such as when one housing development replaces another, and, in those cases, the replacement residential development need not be considered growth.

(1) One-Time Emissions

The approval of Landmark Village would result in the one-time emission of construction and land use/vegetative change emissions, which total approximately 43,934 tonnes of CO_2e.

(a) Construction Emissions

There are three major construction phases for an urban development: demolition, site grading, and building construction. There will not be a demolition phase for this project, since the construction will occur on previously undeveloped land presently being utilized for agricultural purposes. The building construction phase can be broken down further into three subphases: building construction, architectural painting, and asphalt paving. GHG emissions from these construction phases are largely attributable to fuel use from construction equipment and worker commuting.[39] In total, the construction phase of project build-out would result in the emission of 36,309 tonnes of GHGs.

Grading Phase:

With respect to grading-related emissions, URBEMIS was used to estimate the construction equipment emissions. The total amount of GHG emissions from grading construction equipment and on-highway

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38 *World Energy Outlook 2006: Fact Sheet- Global Energy Trends The World's Energy Future: Where Are We Headed?*, available online at http://www.iea.org/textbase/papers/2006/fs_GlobalEnergyTrends.pdf. This report is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.

39 Three programs, the URBEMIS, OFFROAD2007 and EMFAC2007 models, were utilized to calculate construction emissions associated with grading. URBEMIS inputs for the phase length and amount of construction equipment were supplied by Impact Sciences, Inc., who also provided ENVIRON with the number of hours each type of equipment would be used in the construction of Landmark Village.

trucks would be a one-time emission of approximately 14,449 tonnes of CO_2e. GHGs also would be emitted during the grading phase from commuting worker vehicles. These emissions would occur in two ways: running emissions,[40] produced by driving the vehicle, and start-up emissions,[41] produced by turning the vehicle on. The majority of worker commute emissions would be running emissions. The total amount of GHG emissions from worker commuting, which includes running and start-up emissions, during grading would be a one-time emission of 262 tonnes of CO_2e.[42]

Building Construction Phase

URBEMIS also was utilized to calculate the CO_2e emissions from off-road construction equipment, worker commuting, and vendor trips for the building construction phase of Landmark Village, which is forecast to occur between 2010 and 2013, based on the size and type of buildings specified by the user and URBEMIS defaults.[43] The total amount of GHG emissions from the building construction phase would be a one-time emission of 21,598 tonnes of CO_2e.

(b) Land Use/Vegetative Change Emissions

The removal of existing vegetation at Landmark Village would contribute to net GHG increases by reducing existing carbon sequestration capacity. That is, by removing vegetation that stores carbon, existing GHG emissions would increase when that carbon is released as CO_2 upon removal. However, after completion of the Landmark Village project, many privately owned areas would be revegetated with trees, shrubs, and other vegetation. These new growth areas may sequester more CO_2 from the

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40 Total running emissions from worker commuting were calculated by estimating the vehicle miles traveled (VMT) by construction workers and multiplying this value by the representative GHG emission factors for the vehicles the workers are expected to drive. (The total number of VMT by construction workers is the product of the number of equipment days, the factor 1.25, and the average roundtrip commute length (which was estimated by URBEMIS to be 12.7 miles).)

41 Startup emissions were calculated using the following assumptions: (1) the number of round trips were equal to the number of worker days; (2) the breakdown in vehicles was 50 percent light duty autos and 50 percent light duty trucks; and (3) two engine start-ups per day with a 12 hour wait before each start-up. The US EPA recommends assuming that CH_4, N_2O, and HFCs account for 5 percent of GHG emissions from on-road vehicles, taking into account their global warming potentials. To incorporate these additional GHGs into the calculations, the total GHG footprint was calculated by dividing the carbon dioxide emissions by 0.95.

42 These estimates do not account for improvements in fuel efficiency due to the Pavley standards (AB 1493) because some of the project construction may occur before the Pavley standards affect the fuel efficiency of the fleet.

43 URBEMIS generated values were used for vendor trip length, vendor trips per building built, and number of pieces of equipment.
Please note that following preparation of the technical inventory analysis, the build-out timeframe of the Landmark Village project shifted, such that the project is now anticipated to be constructed during the 2010 to 2013 timeframe. This shift does not substantially effect the construction-related emissions addressed in the section and projected with the URBEMIS software.

atmosphere than was sequestered pre-development due to the re-vegetation of the areas with vegetation that sequesters more carbon dioxide. To simplify, the difference between the total before-development sequestered CO_2 and the after-development sequestered CO_2 is the one-time CO_2 released from clearing the vegetation.

Vegetation Removal:

The one-time release of GHG emissions due to changes in the existing carbon sequestration was calculated using a four-step methodology: (i) identify and quantify the change in area of various land use types due to development; (ii) estimate the biomass associated with each land use type; (iii) calculate the CO_2 emissions from the removal of vegetation; and, (iv) calculate the overall change in sequestered CO_2. The proposed project's total CO_2e emissions attributable to the removal of vegetation from the existing carbon sequestration capacity would be approximately 9,396 tonnes.

Site Revegetation:

The IPCC provides default annual CO_2e sequestration rates on a per tree basis for 10 likely species classes in urban areas; these rates range from a high of 0.052 tonne of CO_2e per year in hardwood maple to a low of 0.012 tonne of CO_2e per year in Juniper trees. Alternatively, an average of 0.035 tonne of CO_2e per year per tree can be assumed for trees planted, if the tree type is not known. Because the tree types for Landmark Village are not known at this time, the 0.035 tonne of CO_2e per year per tree rate was utilized.

The IPCC also specifies an active growth period of 20 years. (Urban trees are only net carbon sinks when they are actively growing.) Thereafter, the accumulation of carbon in biomass slows with age, and would be offset completely by losses from clipping, pruning, and occasional death. Of course, actual active growing periods are subject to, among other things, species, climate regime, and planting density. Trees also may be replaced at the end of the 20-year cycle, which would result in additional years of carbon sequestration. However, this would be offset by the potential net release of carbon from the removal of the replaced tree.

Approximately 2,500 new trees would be planted in Landmark Village. Planting these trees would sequester approximately 1,771 tonnes of CO_2e. This additional carbon sequestration would reduce the net CO_2e emissions from vegetation change to approximately 7,625 tonnes (that is, 9,396 tonnes (vegetation removal) less 1,771 tonnes (2,500 net new trees)).

(2) Annual Emissions

The annual emissions from the Landmark Village development amount to approximately 20,193 tonnes of CO_2e per year.

(a) Residential Emissions

Residential buildings generate GHG emissions as a result of activities requiring electricity and natural gas as energy sources. When electricity is used in a residential building, the electricity generation typically takes place off-site.[44] The amount of energy, and, therefore, the associated GHG emissions emitted per dwelling unit, varies with the type of residential building. The major types of residential buildings proposed for Landmark Village are single-family homes, attached townhomes or condominiums, and apartments.

Energy use in residential buildings is divided into: (1) energy consumed by the built environment; and (2) energy consumed by uses that are independent of the construction of the building, such as plug-in appliances. In California, Title 24 governs the first category (energy consumed by the built environment) and regulates HVAC systems, water heating, and some fixed lighting. Examples of "plug-in" energy use include refrigeration, cooking, lighting, *etc.* Energy use for these two categories were calculated separately, and the resulting energy use quantities were then converted to GHG emissions by multiplying the total energy use by the appropriate emission factors, incorporating information on local electricity production.[45]

Energy Use in the Built Environment:

The Micropas software was used to calculate the built environment energy use per square foot per year, and the TDV of the energy use per square foot per year in order to determine Title 24 compliance.[46] TDV energy use is a parameter that speaks to the electricity burden that a building puts on the electrical

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44 Residential energy sources also may include fuel, oil, kerosene, liquefied petroleum gas, and wood. However, these sources will likely contribute only small amounts of GHGs. In addition, wood burning hearths are addressed in the "area sources" section.

45 The Southern California Edison specific emission factor for electricity deliveries is 665.72 lbs CO_2/MWh. (See *California Climate Action Registry Database*, *Southern California Edison PUP Report*, 2005, available online at http://www.climateregistry.org/CarrotDocs/26/2005/SCEPUP05.xls.) This report also is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.

46 Title 24 determines compliance by comparing the energy use of a modeled, or "proposed home," to a minimally Title 24 compliant "standard home" of equal dimensions; accordingly, Title 24 focuses on building energy efficiency per square foot, and not the overall dimensions of a dwelling unit.

system. In general, there is a larger demand on the electrical system during the day (peak times) than at night (off peak). Title 24 compliance is based on TDV energy use, and not on annual energy use.

The output of the Micropas runs provided annual electricity use for the HVAC system, and annual natural gas usage for the heating and domestic hot water systems per building. These energy use values were divided by the number of dwelling units per building to calculate the annual energy use of each dwelling unit type for electricity (in kilowatt hours per year) and for natural gas (in hundred cubic feet per year).

Electricity use in standard 2008 Title 24 compliant single-family homes, attached homes, and apartments is 6,841, 4,634, and 4,051 kilowatt hours per dwelling unit per year, respectively. Natural gas use in standard 2008 Title 24 compliant single-family homes, attached homes, and apartments is 47, 30, and 26 million British thermal units (MMBTU) per dwelling unit per year, respectively.

The project applicant has committed to making all new homes 15 percent more energy efficient than what Title 24 requires, or 15 percent more energy efficient on a TDV basis.[47] To determine the benefits of this 15 percent energy efficiency commitment, the energy use numbers calculated above from the built environment were multiplied by 0.85. As Title 24 does not regulate plug-in energy use, the overall reduction of GHG emissions is less than 15 percent, but still substantial. Specifically, the project applicant's commitment to provide residential buildings that are 15 percent better than Title 24 requires would reduce the electricity use for single-family homes, attached homes, and apartments to 6,297, 4,334, and 3,788 kilowatt hours per dwelling unit per year, respectively. This commitment also would reduce the natural gas use for single-family homes, attached homes, and apartments to 41, 26, and 23 MMBTU per dwelling unit per year, respectively.

Major Appliances and Plug-In Energy Use:

Micropas does not calculate energy use from major household appliances, such as refrigerators, clothes washers and dryers, dishwashers, and cooking rangers. Therefore, the energy use for these major appliances was estimated using guidance from the Department of Energy's BARBD. The annual electricity use of major appliances for single-family homes, attached homes, and apartment homes is 1,916, 1,738, and 1,560 kWh hours per dwelling unit per year, respectively. In addition the annual natural gas use of major appliances for single-family homes, attached homes, and apartment homes is 6, 5, and 4 MMBTU per dwelling unit per year, respectively.

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47 Although annual energy use and TDV energy do not necessarily scale linearly with each other, this analysis assumed that all sources covered by Title 24 that are modeled in the ACM would uniformly use 15 percent less annual energy.

Additional energy use from loads such as lighting, office equipment, plug-in cooking equipment, and electronics are also part of the anticipated energy use for a residential development. Similar to the major appliances above, energy use values for plug-in appliances, lighting and miscellaneous energy loads (MELs) were estimated using guidance from the Department of Energy's BARBD. Plug-in lighting energy use was determined by the finished floor area, whereas the electricity usage for miscellaneous energy loads (e.g., home entertainment devices, computers, and small kitchen appliances) were determined by equations involving the number of bedrooms, finished floor area, and a California-specific load multiplication factor. The annual electricity use for plug-in appliances, lighting, and miscellaneous energy loads for single-family homes, attached homes, and apartment homes is 1,298, 896, and 737 kWh hours per dwelling unit per year, respectively.

The estimates for residential plug-in energy-use presented here are conservative because the estimates are based upon currently available technologies, which are likely less energy-efficient than future equipment models will be. If future Landmark residents install Energy Star appliances, use more energy efficient equipment, and replace incandescent lights with fluorescent lights, the actual electricity use for plug-ins will be lower than is estimated here. Conversely, future residents may have more small plug-ins (e.g., MP3 player, cell phone, miscellaneous equipment) that could somewhat offset the savings from more energy efficient equipment. However, lighting and large appliances contribute to the bulk of the electricity load, and these types of equipment will likely improve in energy efficiency in the future, the emission quantities presented here are still likely overestimated.

Results:

Total CO_2 emissions would be 5,138 tonnes per year for the CARB 2020 NAT scenario of minimally compliant 2005 Title 24 dwelling units. With a 15 percent improvement over the 2008 Title 24 standards, the total emissions would be 3,929 tonnes per year, which represents a 24 percent reduction in GHG emissions. (As noted above, all emissions estimates presented here assume that the RPS goal of 20 percent renewables is achieved by SCE.)

The project applicant also has committed to using renewable electricity equivalent to putting photovoltaic systems (i.e., solar panels) on all of the single-family residences. Here, it is conservatively assumed that a 2 kWh system would be installed, although larger systems (2.3 kWh) may be more common. An industry source[48] estimates that a 2 kWh system in Santa Clarita will generate 3,356 kWh per year.[49] The energy produced by the photovoltaic systems is renewable and is assumed, for the purposes of this estimate to

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48 Sunpower Solar Calculator, Sunpower Company. Available at: http://www.sunpowercorp.com/For-Homes/How-To-Buy/Solar-Calculator.aspx.

49 A kWh is one kilowatt of power for one hour.

result in zero GHG emissions. Accordingly, the quantity of energy supplied by photovoltaic systems was subtracted from the single-family residence electricity-use to estimate GHG emissions reductions from installing solar panels. With 15 percent improvements over the 2008 Title 24 standards and with renewable energy, the 308 single-family homes emit a total of 912 tonnes CO_2 per year – 688 tonnes less CO_2 then minimally 2005 Title 24 compliant single-family homes without renewable energy. The total CO_2 emissions for all dwelling units, if 15 percent better than 2008 Title 24 and with renewable energy, would be 3,656 tonnes per year; a 29 percent reduction in GHG emissions.

Table 4.23-2, below, presents the inventory results for residential buildings.

Table 4.23-2
Estimated Residential Emissions

Title 24 and Renewable Scenario	Final CO_2e (Tonnes of CO_2e/Year)	Percent Saved Over Title 24
2005 Title 24 Compliant	5,138	--
2008 Title 24 Compliant	4,379	15%
15% Better Than 2008 Title 24	3,929	24%
15% Better Than 2008 Title 24 And Renewables (Project Applicant's Commitment)	3,656	29%

Source: ENVIRON, 2009.

Several factors lead to uncertainties in the above analysis. First, the exact design of residential buildings that would be built at Landmark Village is unknown. However, this uncertainty is expected to neither over- nor underestimate emissions because each residential building will be Title 24 compliant. Title 24 grants enough flexibility that if a designer puts in more windows than is "allowed" under the prescriptive measures, the energy efficiency losses can be offset by improving the window quality, or installing a more efficient HVAC system.

Relatedly, energy use would vary considerably depending upon the design of the home, and the residential units to be built in Landmark Village would vary considerably in size, layout, and overall design. The parameters used in this inventory are intended to represent the upper quartile of homes relative to sizes in each category. As such, energy use from the homes that will actually be built in Landmark Village are anticipated to be lower.

Finally, built environment and plug-in energy use would vary considerably depending upon the home owners' habits and the appliances, lights, and other plug-in electricity users installed by the homeowner. The project applicant would have little, if any, influence over these choices made by the homeowner.

Current median behavior attributes are presented here. To the extent that individuals are becoming more energy conscious, and/or appliances become more energy efficient, this inventory tends to overestimate energy use in the future.

(b) Nonresidential Emissions

Nonresidential buildings include all structures, except residences, that may exist in a development, such as government, municipal, commercial, retail, and office space. The amount of energy, and therefore, the associated GHG emissions emitted per square foot of available space varies with the nonresidential building's type of use. For example, restaurants are far more energy intensive than warehouses, which have little climate conditioned space. Accordingly, information on the type of nonresidential buildings that are planned for Landmark Village is critical to estimating GHG emissions. The project applicant provided data summarizing the nonresidential building categories proposed for Landmark Village, which include: (1) grocery; (2) miscellaneous retail/commercial/office (i.e., restaurant [20 percent]; office [25 percent]; retail [55 percent]); (3) hotel; (4) public safety (i.e., fire station [100 percent]); and (5) institutional (i.e., schools [100 percent]).

Similar to that described for residential buildings, GHGs are emitted as a result of activities in nonresidential buildings when electricity and natural gas are used as energy sources. Combustion of any type of fuel emits CO_2e and other GHGs directly into the atmosphere. GHGs also are emitted during the generation of electricity from fossil fuels. When electricity is used in a nonresidential building, the electricity generation typically takes place off site. And, while fuel combustion generates CH_4 and N_2O, the emissions of these GHGs typically comprise less than 1 percent of CO_2e emissions from electricity generation and natural gas consumption. Fuel oil, kerosene, liquefied petroleum gas, and wood also can be used as fuels, but generally contribute only in small amounts as combustion sources within nonresidential buildings.

As with residential buildings, energy use in nonresidential buildings is divided into two categories: (1) energy consumed by the built environment; and (2) energy consumed by uses that are independent of the construction of the building, such as plug-in appliances. The overall electricity and natural use was calculated on a per square foot basis for each building type based on data provided by the CEC's California Commercial End-Use Survey (CEUS) results. Energy use was based on buildings in California forecasting climate zone 9. The end use data provides an estimate of the percent of total energy use comprised by the Title 24 regulated (built environment) and plug-in electricity in each building type.

The project applicant has committed to making all new nonresidential buildings 15 percent more energy efficient than the Title 24 2008 standards, or 15 percent more energy efficient on a TDV basis. Although

annual energy use and TDV energy do not necessarily scale linearly with each other, the analysis assumes that all sources covered by Title 24 would uniformly use 15 percent less annual energy. Non-Title 24 regulated energy use is assumed to still use the same amount of energy as a minimally Title 24 compliant building. For example, no credit is taken for any Energy Star appliances since it is difficult to determine which appliances may be present in the various nonresidential building categories. In addition to the Title 24 exceedance, the project applicant also has committed to provide photovoltaic equivalent systems for every 1,600 square feet of nonresidential roof area. As a result, overall CO_2 emissions associated with that would be built at Landmark Village is unknown. This uncertainty is expected to neither non-residential energy use are 7,858 tonnes CO_2 per year.

For new developments, the exact types of buildings typically are unknown. As such, not all building categories that may actually exist in Landmark Village at build-out are represented in this analysis. However, all of the commercial building area is accounted for and the best available assessment of the building type composition for the proposed project was used in estimating future GHG emissions. Additionally, although it is unknown exactly how the buildings will be designed, each building will be Title 24 compliant. Therefore, all design features of any future buildings that would make a building less energy efficient would be offset by design features that make the building more energy efficient.

(c) Mobile Source Emissions

The mobile source emissions considered for this project would be from the typical daily operation of motor vehicles by Landmark Village residents. Operational emissions from new residences are considered to be growth, as residences are rarely removed from the housing supply once constructed.[50] However, as previously discussed, the increase of new GHG emissions is caused by population growth. Therefore, it is not clear that commercial development should be considered new growth for vehicular travel purposes.

To the extent that commercial development serves existing residential development, its vehicular travel may not be new. In fact, if the new commercial area serves an area with a high residential/commercial balance, then this new commercial growth may reduce shopping and work trip lengths, thereby reducing GHG emissions associated with mobile sources. And, to the extent that new commercial development serves new residential development, much of the commercial vehicle travel already would be counted in the evaluation of the new residential development. If, however, the new commercial area results in longer

50 There are exceptions, such as when one housing development replaces another, and, in those cases, the replacement residential development need not be considered growth.

trips for its workers and residents than they would have previously made, then it adds GHG emissions.[51] Accordingly, GHG emissions from VMT serving commercial areas only should be counted if the commercial areas contribute to greater VMT as a result of its location. If the commercial development lowers VMT, then it should be considered to have a zero or negative GHG contribution as a result of its shortened operational vehicle trips. Although the commercial area at Landmark Village likely reduces trip lengths and VMT by bringing commercial land uses in closer proximity to existing residences, and thereby resulting in a negative GHG contribution, it was assumed to contribute to a net zero increase in overall United States-wide traffic.

The CCAR General Reporting Protocol recommends estimating GHG emissions from mobile sources at an individual vehicle level, assuming knowledge of the fuel consumption rate for each vehicle as well as the miles traveled per car. Since these parameters are not known for a future development, the CCAR guidance is too specific to use as recommended. However, the CCAR methodology can be used with fleet-average characteristics estimated from current data available for the state of California. The program developed for CARB, the EMFAC model, has the capability to calculate mobile source CO_2e emission factors for the vehicles that would be associated with the proposed project.

Landmark Village is the first phase of the Newhall Ranch Specific Plan, a master planned, sustainable community. As such, traffic patterns, trip rates, and trip lengths are based upon a traffic analysis of Newhall Ranch at buildout. The analysis in this section uses trip generation rates specific to Landmark Village and trip lengths specific to Newhall Ranch in order to ensure that an accurate representation of VMT at buildout is provided.

In an effort to include only trips made by Landmark Village residents, as opposed to trips associated exclusively with the commercial development, only trips originating or ending at Landmark Village residences are analyzed. This approach avoids counting trips made by residents outside of Landmark that visit Landmark Village to shop, which, as discussed above, do not represent true growth because they would have been made in the absence of the population growth accommodated by Landmark Village. In fact, the existence of Landmark Village likely will reduce trip lengths as it would provide local shopping and employment opportunities for existing residents in the Santa Clarita Valley. It also should be noted that non-home-based trips made by Landmark Village residents (e.g., from work to a gas station) are not included in this analysis. In addition, all legs of multistop trips are not counted, as only the first leg of the trip from the home would be counted.

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51 Commercial development that could potentially increase VMT would be facilities that draw trips from far away that otherwise would not be made. A theme park, for example, may be viewed as such a development.

The GHG emissions from mobile sources were estimated based upon the total number of miles traveled by Landmark Village residents for trips that start or end from a residential unit within the project site, regardless of whether the trip has an internal or external destination and irrespective of the purpose of the trip. (The trip rates utilized are from Austin-Foust's December 2008 Newhall Ranch RMDP and SCP EIR/EIS Traffic Analysis, and the trip lengths utilized were provided directly by Austin-Foust.) The VMT was multiplied by the appropriate emissions factors for running and starting emissions from EMFAC2007. However, in order to account for the implementation of AB 1493 (Pavley standards), the emissions were decreased by 20 percent. Based on the modeling and incorporation of regulatory standards, vehicles associated with the proposed project would emit approximately 7,074 tonnes of CO_2e per year.

(d) Municipal Emissions

Municipal sources of GHG emissions at Landmark Village would include both the supply and treatment of water and wastewater, public lighting and municipal vehicles. The overall emissions from these three municipal sources would be 1,040 tonnes of CO_2e per year.

Water and Sewage:

The majority of estimated GHG emissions from water supply and sewage treatment are due to the energy used to convey, treat, and distribute water. Thus, these emissions generally are from the production of electricity to power these systems. Additional emissions from wastewater treatment include CH_4 and N_2O, which are emitted from the wastewater. In general, the water/sewage category is the major source of municipal sector GHG emissions.

Landmark Village would generate a total water demand of 989 acre-feet per year (afy). Of the 989 afy, 622 afy would be potable groundwater pumped from an underlying aquifer and 367 afy would be non-potable recycled water produced by the Newhall Ranch Water Reclamation Plant.[52] To supply potable water to residential and commercial users, three processes are necessary: (1) supply and conveyance of the water from the source; (2) treatment of the water to make it acceptable for consumption; and (3) distribution of the water to individual users. After use, the wastewater is treated

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52 Please note that following preparation of the greenhouse gas emissions inventory for Landmark Village, the water demand projections for the proposed project were revisited. This re-evaluation of the project's water demand resulted in a determination that the total, potable and non-potable water demand would be less than what is provided above. Specifically, the total water demand for Landmark Village is estimated to be 972 afy, which is comprised of 608 afy of potable water and 364 afy of non-potable water. Accordingly, the GHG emission estimates provided in this section, and in the supporting technical report (see **Appendix 4.23**), overstate emissions as the actual water demand would be less than what is analyzed here. See Landmark Village Recirculated EIR, **Section 4.10**, Water Service.

either for disposal or reuse as recycled water. Any recycled water generally is redistributed to users via pumping. The annual emissions from water treatment and distribution are approximately 711 tonnes of CO_2e per year.

Potable Groundwater Supply and Conveyance. To supply the annual demand for 622 afy of potable water, Landmark Village would draw upon a local supply of water from an underground aquifer, through pumping, and distribute the water throughout the development. The Electric Power Research Institute has estimated that, nationwide, the amount of energy required to pump water from the ground ranges from 228 to 587 kW per hour per acre-foot.[53] Pumping groundwater in southern California is typically more energy-intensive than in other areas of the state and nation because its aquifers are relatively deep; in southern California's Chino Basin, which is to the southeast of the Landmark Village site, it has been estimated that 950 kW per hour of electricity are needed to supply 1 acre-foot of groundwater.[54] To be conservative, it was assumed that it would require 950 kW per hour of electricity to extract 1 acre-foot of water from the aquifer underlying Landmark Village.[55] Using this emission factor, the expected potable water demand of 622 afy and the SCE carbon-intensity factor, supplying and conveying groundwater in Landmark Village is estimated to account for 156 tonnes of CO_2e per year.[56]

Potable Water Treatment and Distribution. For water intended for indoor use in southern California, it is estimated that 36 kW per hour of electricity is necessary to treat 1 acre-foot of water, and an additional 414 kW per hour is necessary to distribute that water to the end users.[57] Based on Landmark Village's

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53 *California's Water-Energy Relationship: Final Staff Report*, California Energy Commission (November 2005), CEC-700-2005-011-SF, page 26. This report is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.

54 *California's Water-Energy Relationship: Final Staff Report*, 2005

55 *Ibid.* The amount of energy required to supply and convey water depends heavily both on how the water is extracted and on the distance between the water source and the end user. At least half of the potable water consumed in southern California is drawn from surface water in northern California or nearby states, and supplied to the south via aqueducts. Pumping this water over great distances and sometimes high elevations to the end user can be very energy-intensive. It has been estimated that the average amount of electricity necessary to supply and convey one acre foot of water suitable for indoor use to southern California is 3,1709 kW/hr, taking into consideration the large portion of water that is imported from hundreds of miles away. Using the SCE carbon-intensity factor, this is equivalent to approximately 2.94 tonnes of CO_2e per million gallons. However, since it is known that Landmark Village would use the much less energy-intensive process of pumping groundwater to supply its potable water needs, it is appropriate to use a groundwater specific emission factor and not the generic average emission factor for southern California.

56 A more refined estimate, taking into account the actual aquifer depth and physical properties of the aquifer, likely would lower the estimate of GHG emissions from groundwater pumping slightly.

57 *Refining Estimates of Water-Related Energy Use in California*, California Energy Commission (December 2006), PIER Final Project Report, prepared by Navigant Consulting, Inc., page 22. This report is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.

total estimated potable water demand of 622 afy, these emission factors, and the SCE-carbon intensity factor, treating and distributing potable water in Landmark Village is estimated to account for 6 tonnes[58] of CO_2e and 68 tonnes of CO_2e per year, respectively. (Please note that this estimate may double count pumping energy requirements already accounted for in the groundwater pumping analysis because the water may already be at the required pressure to distribute after being pumped from the aquifer.)

Wastewater Treatment. The Newhall Ranch Water Reclamation Plant has the capacity to treat 21 af per day of wastewater and accommodate a maximum flow of 42 af per day.[59] This plant would service not just Landmark Village, but the entire Newhall Ranch. For the purposes of this inventory, though, only emissions attributable to wastewater generated as a result of the development of Landmark Village are considered. Emissions associated with wastewater treatment would include the emissions necessary to power the treatment process and emissions from the organic material in the wastewater. The Landmark Village Draft EIR estimates that the project would generate a worst-case average total of 459 afy (or 149.7 million gallons) of wastewater. This number is smaller than the total amount of water demanded by and supplied to Landmark Village (989 afy) because not all of the water used by the community is captured and treated as wastewater.

The electricity required to operate a wastewater treatment plant in southern California is estimated to be 623 kW per hour per acre-foot.[60] This is a conservative estimate because it assumes a level of treatment necessary for indoor water (i.e., potable water or water acceptable for household uses such as in toilets); that is, because not all wastewater treated by the reclamation plant for use at Landmark Village would be re-used or treated to this level, the actual amount of electricity required will likely be lower. Based on the expected amount of wastewater requiring treatment (459 afy), the emission factor and the SCE carbon-intensity factor, emissions from the electricity necessary to power the wastewater treatment process are estimated to account for 76 tonnes of CO_2e per year.

In order to calculate the emissions associated with wastewater treatment, which include emissions of CH_4 and N_2O, a per capita emission factor was developed based on a 2005 US GHG inventory for domestic wastewater treatment (25 teragrams CO_2e per year or 25 million tonnes of CO_2e per year)[61] and the 2005

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58 Because treatment is likely simply the addition of chlorine tablets, a low value (eight tonnes of CO_2e per year), or the approximate GHG emissions of two single-family homes, is appropriate.

59 See Landmark Village Draft EIR, **Section 4.11**, Wastewater Disposal.

60 *Refining Estimates of Water-Related Energy Use in California*, California Energy Commission (December 2006), PIER Final Project Report, prepared by Navigant Consulting, Inc., page 22. This report is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.

61 *Inventory of US Greenhouse Gas Emissions and Sinks: 1990-2005*, US Environmental Protection Agency (April 2007), No. 430-R-07-002, available online at http://epa.gov/climatechange/emissions/downloads06/07Waste.pdf. This report also is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.

US population (approximately 296, 410, 404). Emissions from wastewater treatment then were calculated using the emission factor developed from this data (0.084 tonnes of CO_2e per capita per year) and the projected population at Landmark Village (3,680 residents). The emissions from wastewater treatment are estimated to account for 310 tonnes of CO_2e per year.

Non-Potable Recycled Water Distribution. Landmark Village also would need 367 afy of non-potable water, which will be provided from recycled water. Once treated at the Newhall Ranch Water Reclamation Plant, this water will need to be re-pumped through the development to supply it to end users. Estimates of the amount of energy needed to redistribute and, if necessary, additionally treat recycled water vary from 391 to 978 kW per hour per million gallons.[62] To be conservative, the high-end energy intensity estimate was used in this inventory. Based on the estimated demand for reclaimed water, the estimated electricity demand, and the SCE carbon-intensity factor, non-potable reclaimed water redistribution emissions were calculated. Accordingly, redistributing wastewater that has been treated and reclaimed for non-potable uses in Landmark Village is estimated to account for 95 tonnes of CO_2e per year.

In total, all water and wastewater supply, treatment, and distribution activities for Landmark Village are expected to produce 711 tonnes of CO_2e annually. A summary of the CO_2e emissions generated by Landmark Village's water demands is provided in **Table 4.23-3**.

Table 4.23-3
Estimated Water and Wastewater Emissions

Water and Wastewater Program	Total CO_2e Emissions (Tonnes CO_2e per Year)
Groundwater Supply and Conveyance (Potable)	156
Water Treatment (Potable)	6
Water Distribution (Potable)	68
Wastewater Treatment (Indirect Emissions)	76
Wastewater Treatment Plant (Direct Emissions)	310
Recycled Water Distribution (Non-Potable)	95
Total Emissions:	**711**

Source: ENVIRON, 2009.

*Note: This emissions estimate overstates the amount of GHG emissions that would result from the proposed project because the water demand quantities used when preparing the inventory are larger than those actually projected in **Section 4.10**, Water Services, of the Recirculated EIR.*

62 *Refining Estimates of Water-Related Energy Use in California*, California Energy Commission (December 2006), PIER Final Project Report, prepared by Navigant Consulting, Inc., page 24. This report is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.

Typical sources of imported water for southern California are from northern California and the Colorado River; and, based on CEC estimates for energy demand, pumping water to southern California from these typical sources emits approximately 0.84 tonne of CO_2e per acre-foot of water delivered. If Landmark Village were to acquire its water from these typical sources, the GHG emissions associated with pumping the water would be greater. However, since Landmark Village will obtain half of its water from the local underground aquifer and half of its water from the local Newhall Ranch Water Reclamation Plant, water will not need to be pumped long distances to the project site. Therefore, the energy demand, and thus the GHG emissions, are lower than if the development were to obtain its water from imported sources.

Public Lighting:

GHG emissions from public lighting sources are associated with the production of the electricity that powers these lights. Lighting sources considered in this source category include streetlights, traffic signals, area lighting for parks and lots and lighting in public buildings. Data from a report by the City of Duluth shows that the amount of electricity demanded for all types of public lighting is 149 kW per hour per capita per year.[63] Using this study, the SCE-specific carbon intensity emission factor, and the expected Landmark Village population of 3,680, it is estimated that public lighting in Landmark Village would be responsible for 145 tonnes of CO_2e per year.

Municipal Vehicles:

GHG emissions from municipal vehicles are due to the burning of fossil fuels. Municipal vehicles considered in this source category include police cars, fire trucks, and garbage trucks. Based on data from various sources evaluated in the technical report (see **Appendix 4.23**), CO_2e emissions from municipal vehicles would be approximately 0.05 tonnes of CO_2e per capita per year. Using this information in conjunction with Landmark Village's projected population, municipal vehicles would generate 184 tonnes of CO_2e per year.

63 This factor was calculated by summing the total electricity needs for municipal uses and dividing by the Duluth population. The Duluth population was calculated by dividing the city's reported GHG emissions by its reported per capita emissions.

(e) Area Emissions

The area emissions considered for the Landmark Village project are from hearths (e.g., natural gas fired stoves) and landscaping fuel combustion sources (e.g., lawn mowers).[64] URBEMIS, Version 9.2.2, and various land use information were used to calculate area source GHG emissions for Landmark Village.

The location of the project, as specified in URBEMIS, determined the factors used to calculate the hearth fuel use. In Landmark Village, it is estimated that hearths would emit 169 tonnes of CO_2e per year. Landscape maintenance emissions would emit an additional 11 tonnes of CO_2e per year. In total, area sources from Landmark Village account for approximately 180 tonnes of CO_2e per year.[65]

Because GHG emissions from hearths include natural gas fireplaces, this estimate may be too high. That is, as all natural gas consumed in residential homes was accounted for in the residential section of this report, some double counting (overestimation) of emissions occurred in quantifying the GHG emissions from area sources.

(f) Recreation Center Emissions

Four recreation centers would be built in Landmark Village. These centers may include various pools, spas, and restroom buildings. This analysis assumed that pools would be the main consumers of energy in the proposed recreation centers.

The energy used to heat and maintain a swimming pool depends on several factors, including, but not limited to: (1) whether the pool is indoors or outdoors; (2) the size of the pool (surface area and depth); (3) the water temperature; (4) the energy efficiency of the pool pump and water heater; and (5) whether solar heating is used. The analysis below assumed that the proposed pools would be outdoor pools with the dimensions of a typical, competition-size pool (i.e., 50 meters by 22.9 meters). In addition, electricity calculations were based on a pool that ran its standard (not high-efficiency) water filter for 24 hours per day, 365 days per year. The large pool size and standard operating equipment allowed for a conservative (high) energy use estimate that would decrease with a smaller pool or more efficient equipment.

An outdoor competition-sized pool emits approximately 632 tonnes of CO_2 per year (97 tonnes from electricity used to pump water and 535 tonnes from natural gas used to hear the pool). However, each

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64 GHG emissions due to natural gas combustion are excluded from this section since they are covered in residential emissions.

65 Because area sources account for such a small percentage of the overall CO_2e emissions, the contribution of methane and nitrous oxides to overall project GHG emissions was assumed to be small, and therefore was not calculated.

recreation center pool located on the project site would have solar water heating, thereby reducing GHG emissions to only 97 tonnes per year per pool (i.e., the emissions associated with the electricity needed to pump water). Assuming that there will be four, solar heated, competition-sized pools, the total yearly CO_2 emissions from recreation centers is 386 tonnes.

(3) Life-Cycle Emissions

Life-cycle emissions are GHG emissions resulting from the processes used to manufacture and transport materials used in the building and infrastructure provided by the Landmark Village development. The life-cycle GHG emissions include the embodied energy from the materials manufactured and the energy used to transport those materials to the project site. The overall life cycle emissions, annualized by 40 years, are approximately 1.3 to 7.7 percent of the annualized GHG emissions for the entire Landmark Village project. The bulk of these emissions (approximately 0.9 to 7.3 percent) are from general life-cycle analysis studies and do not reflect the details of Landmark Village.

This GHG emissions estimate, however, is provided for informational and comparative purposes only, and is not included in the final inventory, as these emissions would be accounted for under AB 32 in other industry sectors. For instance, the concrete industry is required by law to report emissions and undergo certain early action emission reduction measures under AB 32. Further, although life-cycle emissions estimates can provide a broader view of a project's emissions, life-cycle analyses often double count emissions that might be attributable to other sectors in a comprehensive analysis.

In addition, the life cycle emissions field is still relatively new, and while there are general standards for goals and general practices, the specific methodologies and, in particular, the boundaries chosen for the analysis makes inter-comparison of various studies difficult. For example, in a life cycle emissions analysis for building materials, somewhat arbitrary boundaries must be drawn to define the processes considered in the life-cycle analysis.[66] It has been noted that:

> *The full life-cycle of GHG emissions from construction activities is not accounted for in the modeling tools available, and the information needed to characterize GHG emissions from manufacture, transport, and end-of-life of construction materials would be speculative at the CEQA analysis level.*[67]

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66 For instance, in the case of building materials, the boundary could include the energy to make the materials, the energy used to make the machine that made the materials, and the energy used to make the machine that made the machine that made the materials.

67 *CEQA and Climate Change: Evaluating and Addressing Greenhouse Gas Emissions from Projects Subject to the California Environmental Quality Act*, California Air Pollution Control Officers Association (January 2008), p. 65. This report is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.

Accordingly, the calculations and results presented for the life-cycle emissions vary based on input assumptions and assessment boundaries (e.g., how far back to trace the origin of a material). Assumptions made in this analysis generally are conservative. However, due to the open-ended nature of life-cycle emissions analysis, the analysis presented is not exact and may be highly uncertain.

(4) Impacts in Context

A summary of the proposed project's emissions is presented below in **Table 4.23-4**. In addition, this table depicts to what extent the proposed project exceeds the CARB 2020 NAT scenario.

As previously discussed, in order for California to return to 1990 levels by 2020 and achieve the emission reduction mandates of AB 32, the CARB 2020 NAT scenario must be improved upon by at least 29 percent. The CARB 2020 NAT scenario relies on specific assumptions such as electricity generation, vehicle fuel efficiency, and building energy efficiency codes. In particular, the CARB 2020 NAT scenario assumes that all new electricity generation will be supplied by natural gas plants, building energy efficiency codes are held at the 2005 Title 24 standards, and vehicle fuel efficiency is not affected by any regulatory action. As shown below, the proposed project's emissions have been reduced more than 29 percent below the CARB 2020 NAT scenario; therefore, project impacts are less than significant.

Comparison With Executive Order S-03-05 2050 Goal:

As previously discussed, Executive Order S-03-05 mandates that California emit 80 percent less GHGs in 2050 than it emitted in 1990. As of 2004, California was emitting 12 percent more GHG emissions than in 1990. For California to emit 80 percent less than it emitted in 1990, the emissions would need to be only 18 percent of the 2004 emissions. Accounting for a population growth from 35,840,000 people in 2004 to approximately 55,000,000 people in 2050, the emissions per capita would have to be only 12 percent of what they were in 2004. This means 88 percent reductions in per capita GHG emissions from today's emissions intensities must be realized in order to achieve California's 2050 GHG goals.

CARB's Scoping Plan provides insight as to how it anticipates California will achieve the 2050 reduction goal in Governor Schwarzenegger's Executive Order S-03-05:

> *Reducing our greenhouse gas emissions by 80 percent will require California to **develop new technologies** that dramatically reduce dependence on fossil fuels, and **shift into a landscape of new ideas, clean energy, and green technology**. The measures and approaches in this plan are designed to accelerate this necessary transition, promote the rapid development a cleaner, low carbon economy, create vibrant livable communities, and improve the ways we travel and move goods throughout the state. (Climate Change Proposed Scoping Plan: A Framework For Change, California Air Resources Board (adopted December 2008), p. ES-2; emphasis added.)*
>
> *[T]he measures needed to meet the 2050 goal are too far in the future to define in detail . . . (Ibid.)*

Table 4.23-4
Summary of Greenhouse Gas Emissions

Source	GHG Emissions			Improvement over CARB 2020 NAT[9]
	Unit	Project	CARB 2020 NAT	(%)
Vegetation[1]	tonnes CO_2e / year	7,625	7,625	N/A
Construction[2]		36,309	36,309	N/A
Total (one-time emissions)		**43,934**	**43,934**	**N/A**
Residential[3]	tonnes CO2e / year	3,656	5,138	29%
Non-Residential[4]		7,858	10,130	22%
Mobile[5]		7,074	9,500	26%
Municipal[6]		1,040	1,803	42%
Recreational (Pools)[7]		386	2,592	85%
Area[8]		180	180	0%
Total (annual emissions)		**20,193**	**29,341**	**31.2%**
Annualized Total[10]	**tonnes CO2e / year**	**21,291**	**30,439**	**30.1%**

Notes:

1. *Vegetation emissions are one-time emissions resulting from the removal of existing vegetation on the project site. A total of 940 acres of existing vegetation is considered to be removed for development purposes.*
2. *Construction emissions are one-time emissions reported in total metric tonnes. Sources of emissions include construction equipment and vehicles associated with worker commuting and vendor trips.*
3. *Residential emissions for single-family, attached, and apartment dwelling units include emissions associated with electricity and natural gas use. As specified in the Newhall Ranch Specific Plan, a total of 1,444 dwelling units are considered.*
4. *Non-residential emissions for retail, offices, grocery, restaurants, hotel lodging, and schools account for electricity and natural gas use.*
5. *Mobile source emissions account for residential vehicular trips.*
6. *Municipal emissions account for emissions due to energy production associated with water supply, public/street lighting, and municipal vehicles.*
7. *ENVIRON assumed an outdoor competition-size swimming pool as the main source of GHGs in an aquatic/recreation center.*
8. *Area emission sources include hearth fuel combustion, such as fireplaces, and landscape fuel combustion, such as mowing a lawn.*
9. *Percentages only apply to annual CO_2e emissions; annual and one-time CO_2e emissions cannot be directly compared.*
10. *One-time emissions (vegetation and construction) are "annualized" by dividing by an annualization factor (40). One-time emissions are not annualized in their respective rows above.*

Source: ENVIRON, 2009.

The CEC and CARB also have published an alternative fuels plan that identifies[68] "challenging but plausible ways to meet 2050 [transportation] goals." The main finding from this analysis is that reducing

68 See *State Alternative Fuels Plan*, California Energy Commission and California Air Resources Board, available online at http://www.energy.ca.gov/2007publications/CEC-600-2007-011/CEC-600-2007-011-CMF.PDF (last visited February 11, 2009). This report is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.

today's average per capita driving miles by about 5 percent (or back to 1990 levels), in addition to the decarbonization strategies listed below, would achieve Governor Schwarzenegger's goal to reduce transportation-related emissions to 80 percent below the 1990 levels. The approach described below is from the CEC/CARB report: [69]

> *An 80 percent reduction in GHG emissions associated with personal transportation can be achieved even though population grows to 55 million, an increase of 50 percent. The following set of measures could be combined to produce this result:*
>
> 1. *Lowering the energy needed for personal transportation by tripling the energy efficiency of on-road vehicles in 2050 with:*
>
>   a. *Conventional gas, diesel, and flexible fuel vehicles (FFVs) averaging more than 40 miles per gallon (mpg).*
>
>   b. *Hybrid gas, diesel, and FFVs averaging almost 60 mpg.*
>
>   c. *All electric and plug-in hybrid electric vehicles (PHEVs) averaging well over 100 mpg (on a greenhouse gas equivalents (GGE) basis) on the electricity cycle.*
>
>   d. *Fuel cell vehicles (FCVs) averaging over 80 mpg (on a GGE basis).*
>
> 2. *Moderating growth in per capita driving, reducing today's average per capita driving miles by about 5 percent or back to 1990 levels.*
>
> 3. *Changing the energy sources for transportation fuels from the current 96 percent petroleum-based to approximately:*
>
>   a. *30 percent from gasoline and diesel from traditional petroleum sources or lower GHG emission fossil fuels such as natural gas.*
>
>   b. *30 percent from transportation biofuels.*
>
>   c. *40 percent from a mix of electricity and hydrogen.*
>
> 4. *Producing transportation biofuels, electricity, and hydrogen from renewable or very low carbon-emitting technologies that result in, on average, at least 80 percent lower life cycle GHG emissions than conventional fuels.*
>
> 5. *Encouraging more efficient land uses and greater use of mass transit, public transportation, and other means of moving goods and people.*

Setting aside the CEC and CARB's preliminary plans with respect to the transportation sector, significant and drastic changes will need to be made across every economic sector to reduce emissions to 80 percent below 1990 levels by 2050. In light of the uncertainties regarding the specific reduction strategies and

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69 *Ibid.* at pp. 67–68.

methods needed for California to achieve the 2050 reduction goal identified in Governor Schwarzenegger's Executive Order S-03-05, the impact of the proposed project on the 2050 reduction goal is considered too speculative to assess at this time. (See Cal. Code Regs., tit. 14, sec. 15145.)

7. MITIGATION MEASURES

a. Application of Project Design Features to Newhall Ranch, Including Landmark Village, to Reduce GHG Emissions

The project applicant considered potential project design features during preparation of the Newhall Ranch Specific Plan and the first village within Newhall Ranch—the Landmark Village project.[70] As shown below, Landmark Village, as with all of Newhall Ranch, would incorporate the components of a sustainable community, including the following:[71]

- **Mix of Land Uses.** Landmark Village, along with the other villages in Newhall Ranch, will include a broad range of housing types, including affordable housing, along with commercial, office, and public facilities. As to Landmark Village, a diverse range of 1,444 homes (308 single-family and 1,136 multi-family units) would be provided. To minimize and shorten vehicle trips, most homes will be within walking distances to the Landmark Village community's commercial and mixed-use areas, elementary school site, community park, and trail system. Finally, Landmark Village is located adjacent to the Valencia Commerce Center, one of the largest employment centers in the Santa Clarita Valley. Bike and pedestrian trails within Newhall Ranch and Landmark Village will connect to trails within the Valencia Commerce Center, further reducing automobile usage.

- **Provision of Jobs.** A portion of Newhall Ranch's approximately 20,000 new jobs would be created through build-out Landmark Village's mixed-use and commercial areas. Newhall Ranch is adjacent to the existing Valencia Gateway (which includes the Valencia Commerce Center), which presently provides 50,000 jobs. Other development within Valencia Gateway will create an additional 30,000 jobs. When completed, the job centers in Newhall Ranch and Valencia will have resulted in the creation of approximately 100,000 jobs in the Santa Clarita Valley. A balanced jobs-housing base is a critical component to a sustainable community because it allows people to work close to home and minimizes vehicle miles traveled.

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70 When crafting Landmark Village's project design features, and identifying feasible mitigation measures (as discussed later in the subsection), the project applicant referenced the Office of the California Attorney General's "whitepaper" on mitigation measures and global warming resources, which was last revised on September 25, 2007. This document is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.

71 See also the "Sustainability in Action: Landmark Village" summary issued by the project applicant in 2007. The sustainable community design components include the green building program, water conservation, renewable energy, reduced impermeable surfaces/water re-use, walkability, recreation, protection of natural resources, transportation solutions, and the economic structure. This report is located in **Appendix 4.23** of the Recirculated EIR.

- **Locating of Residential Uses in Close Proximity to Commercial Services/Public Spaces.** Nearly 60 percent of the residential units in Newhall Ranch will be located within walking distance of village or commercial centers. This is clearly documented by the Landmark Village land plan. Residents within Landmark Village will be able to utilize paseos/trails and/or the Santa Clara River Regional Trail to walk to commercial centers, private recreational facilities, the elementary school and a community park. As stated above, this traditional neighborhood design minimizes vehicle trips.

- **Provision of Transit and Light Rail Right-of-Way.** Newhall Ranch, including Landmark Village, will be part of the Santa Clarita Transit system and will pay its fair share for transit service to the community. Transit improvements within Newhall Ranch will include a park-and-ride lot, a future transit station, transfer station, bus stops, and preservation of light rail right-of-way. Landmark Village will include a total of five bus stops, a park-and-ride lot, and the preservation of light rail right-of-way along State Route 126. The provision of transit and the accommodation of light rail encourage residents to rely less on vehicular travel.

- **Open Space, Recreation, and Preservation of Sensitive Resource Areas.** Newhall Ranch, of which Landmark Village is a part, includes the preservation of the High Country, Salt Creek Corridor and the Santa Clara River and internal open areas, a total of nearly 7,800 acres. A total of three community parks (Landmark includes the first) and up to 10 neighborhood parks will be provided as part of Newhall Ranch. Finally, private recreation facilities will be provided throughout the entire Ranch providing additional nearby recreational opportunities to residents, further minimizing vehicle trips.

- **Hierarchy of Trails.** Newhall Ranch will include over 50 miles of trails to encourage pedestrian mobility. Landmark Village includes a 2-mile extension of the Santa Clara River trail, with direct connections to residential, commercial, and park uses, and various paseos including the paseo running along "A" Street or the Landmark Village Spine Road. This design also is intended to minimize vehicle trips.

- **Reducing Impermeable Surfaces.** To curtail urban runoff generated by this project and maximize groundwater recharge, Newhall Ranch, including Landmark Village, will utilize open/soft bottom channels, smaller street sections, where possible, increased native landscape areas, and non-structural water quality treatment improvements.

- **Water Conservation and Re-Use.** Newhall Ranch, including Landmark Village, will utilize native and drought-tolerant plants in the community's landscaping, use recycled water for irrigation, and evapotranspiration controllers (i.e., weather-sensitive sprinklers) to reduce water demand and runoff. The reduction of water demand will reduce energy requirements for water transport and treatment.

- **Traffic/Transportation Improvements.** Landmark Village's traffic circulation plan, which is consistent with all of Newhall Ranch, minimizes vehicle trips and reduces GHG emissions through the design of internal roads in conjunction with homes, school site, commercial areas, and trail systems. Transit is included in the traditional neighborhood design, and it includes a park-and-ride lot and bus stops. Additionally, a 5-mile right-of-way for a potential Metrolink light rail extension is accommodated along SR-126. Trails and bike paths leading to close-to-home jobs, neighborhood-serving retail, and the school encourage residents to reduce vehicle miles traveled. The applicant also has committed to fund $300 million in roadway improvements in the Santa Clarita Valley in conjunction with the Newhall Ranch Specific Plan, including Landmark Village, to improve traffic movement and circulation.

b. Mitigation Measures and Conditions of Approval Required by the Adopted Newhall Ranch Specific Plan, as they Relate to the Landmark Village Project

The following mitigation measures and condition of approval were adopted by the County in connection with its approval of the Newhall Ranch Specific Plan (May 2003). Although these measures were not adopted in response to an analysis of the Newhall Ranch Specific Plan's global climate change impacts, the measures do reduce the amount of GHG emissions resulting from development of the Newhall Ranch Specific Plan, promote sustainable development, and would enable the Specific Plan development to respond to any potential impacts of global climate change. As these measures were adopted and will be implemented, pursuant to the Newhall Ranch Specific Plan, they can be relied upon in this analysis as feasible measures designed to reduce GHG emissions and global climate change impacts.

Flood/Hydrology:

Mitigation Measures 4.2-5, 4.2-6, 4.2-7, and 4.2-8

Biota:

Mitigation Measures SP 4.6-1, SP 4.6-5, SP 4.6-6, SP 4.6-7, SP 4.6-11, SP 4.6-13, SP 4.6-15, SP 4.6-17, SP 4.6-18, SP 4.6-19, SP 4.6-22, SP 4.6-23, SP 4.6-24, SP 4.6-25, SP 4.6-26, SP 4.6-26a, SP 4.6-37, SP 4.6-38, SP 4.6-41, SP 4.6-42, SP 4.6-43, SP 4.6-48, SP 4.6-49, SP 4.6-50, SP 4.6-51

Traffic/Access:

Mitigation Measures SP 4.8-1, SP 4.8-5, SP 4.8-11, SP 4.8-12

Air Quality:

Mitigation Measures SP 4.10-1, SP 4.10-2, SP 4.10-3, SP 4.10-4, SP 4.10-5, SP 4.10-6, SP 4.10-7, SP 4.10-8, SP 4.10-11, SP 4.10-12, SP 4.10-14

Water Resources:

Mitigation Measures SP 4.11-1, SP 4.11-2, SP 4.11-3, SP 4.11-4, SP 4.11-16

Wastewater Disposal:

Mitigation Measures SP 4.12-1, SP 4.12-2

Fire Services and Hazards:

Mitigation Measures SP 4.18-1, SP 4.18-4

Education:

Mitigation Measure SP 4.16-1

Parks, Recreation, and Trails:

Mitigation Measures SP 4.20-1, SP 4.20-2

Electricity/Utilities:

Mitigation Measure SP 4.14-1

Additional Conditions of Approval:

Condition (g)

c. Project Design Features Incorporated as Mitigation Measures by This EIR

As identified and described in the inventory of GHG emissions that would result from Landmark Village, the project includes numerous project design features that lessen Landmark Village's estimated emissions total. In order to ensure that these project design features are implemented, they are recommended here as specific mitigation measures. Therefore, if approved, these project design features/mitigation measures would become part of the legally enforceable mitigation monitoring and reporting program, required by CEQA, for Landmark Village.

These mitigation measures are in addition to those adopted in the previously certified Newhall Ranch Specific Plan Program EIR. To indicate that the measures relate specifically to the Landmark Village project, each measure is preceded by "LV," which stands for Landmark Village.

LV 4.23-1 All residential buildings on the project site that are enabled by approval of the proposed project shall be designed to provide improved insulation and ducting, low E glass, high efficiency air conditioning units, and radiant barriers in attic spaces, as needed, or equivalent to ensure that all residential buildings operate at levels 15 percent better than the standards required by the version of Title 24 applicable at the time the building permit applications are filed.

LV 4.23-2 All commercial and public buildings on the project site that are enabled by approval of the proposed project shall be designed to provide improved insulation and ducting, low E glass, high efficiency HVAC equipment, and energy efficient lighting design with occupancy sensors or equivalent to ensure that all commercial and public buildings operate at levels 15 percent better than the standards required by the version of Title 24 applicable at the time the building permit applications are filed.

LV 4.23-3 The project applicant or designee shall produce or purchase renewable electricity equivalent to the installation of one 2.0 kilowatt photovoltaic (i.e., solar) power system when undertaking the design and construction of each single-family detached residential unit on the project site that is enabled by approval of the proposed project; or, at the applicant's option, prior to commencing construction, the applicant shall secure offsets or credits for carbon dioxide equivalents from either the Climate Action Reserve of the California Climate Action Registry, the Chicago Climate Exchange, or similar reserve/exchange; or, alternatively, at the applicant's option, the applicant may pay to the South Coast Air Quality Management District (District) the equivalent amount of funds that would be due to buy credits from the Climate Action Reserve, Chicago Climate Exchange, or similar reserve/exchange for greenhouse gas emission mitigation purposes. In any case, installation of individual photovoltaic systems shall be considered when undertaking the design and construction of single-family residential units on the project site.

LV 4.23-4 The project applicant or designee shall produce or purchase renewable electricity, equivalent to the installation of one 2.0 kilowatt photovoltaic (i.e., solar) power system on each 1,600 square feet of nonresidential roof area provided on the project site; or, at the applicant's option, prior to commencing construction, the applicant shall secure offsets or credits for carbon dioxide equivalents from either the Climate Action Reserve of the California Climate Action Registry, the Chicago Climate Exchange, or similar reserve/exchange; or, alternatively, at the applicant's option, the applicant may pay to the South Coast Air Quality Management District (District) the equivalent amount of funds that would be due to buy credits from the Climate Action Reserve, Chicago Climate Exchange, or similar reserve/exchange for greenhouse gas emission mitigation purposes. In any case, installation of individual photovoltaic systems shall be considered when undertaking the design and construction of nonresidential buildings on the project site.

LV 4.23-5 Consistent with the Governor's Million Solar Roofs Plan, the project applicant or designee, acting as the seller of any single-family residence constructed as part of the development of at least 50 homes that are intended or offered for sale, shall offer a solar energy system option to all customers that enter negotiations to purchase a new production home constructed on land for which an application for a tentative subdivision map has been deemed complete. The seller shall disclose the total installed cost of the solar energy system option, and the estimated cost savings.

LV 4.23-6 The project applicant shall use solar water heating for all pools located at the Landmark Village recreation centers.

LV 4.23-7 The project applicant, in accordance with Los Angeles County requirements, will design and construct the approximately 11,000 square feet fire station so as to achieve LEED silver certification.[72]

Table 4.23-5
Summary of Landmark Village Global Climate Change Mitigation Measures

Mitigation Measure	Compliance Method
4.23-1: Residential Buildings 15% Percent Better Than Title 24	Design features may include, but are not limited to, improved insulation and ducting, low E glass, high efficiency air conditioning units, and radiant barriers in attic spaces.
4.23-2: Nonresidential Buildings 15% Percent Better Than Title 24	Design features may include, but are not limited to, improved insulation and ducting, low E glass, high efficiency HVAC equipment, and energy efficient lighting design with occupancy sensors or equivalent.
4.23-3: Renewable Electricity for Single-Family Residences	Renewable electricity may be provided via, but is not limited to, solar power; alternatively, carbon offsets or credits may be purchased.
4.23-4: Renewable Electricity for Nonresidential Buildings	Renewable electricity may be provided via, but is not limited to, solar power; alternatives, carbon offsets or credits may be purchased.
4.23-5: Governor's Million Solar Roofs Plan	Project applicant shall offer solar energy system option to prospective purchases of single-family residences under the terms mandated by the Governor's Million Solar Roofs Plan.
4.23-6: Solar Water Heating for Pools	Each of the pools located at the recreation centers would be heated via solar power.
4.23-7: LEED Silver Certification for Fire Station	Compliance with LEED standards, which would require the fire station to obtain approximately half of the overall LEED points.

In addition to the six global climate change mitigation measures identified above, mitigation measures recommended in connection with other sections (*i.e.*, air quality; biological resources; traffic) of the Landmark Village Draft and Recirculated EIRs would reduce the proposed project's GHG emissions and/or improve the project's capacity to respond to the uncertain effects of global climate change. As these measures are recommended for adoption and incorporation into a mitigation monitoring and reporting program, these measures can be relied upon in this analysis as feasible measures designed to reduce GHG emissions and the impact of global climate change on the project.

72 LEED certification is a performance-oriented rating system whereby building projects earn points for satisfying criterion designed to address environmental impacts inherent in the design, construction, operation and management of building.

d. Additional Potentially Feasible Programs

In addition to the mitigation measures set forth above, the project applicant also is pursuing implementation of two potentially feasible programs that may result in further reductions of CO_2e per year. The feasibility of the following two programs is still uncertain, but nonetheless the project applicant has committed to working with Los Angeles County and Southern California Edison with respect to each program:

Energy Efficient Municipal Lighting Program. The project applicant is committed to working with the County of Los Angeles and Southern California Edison to install, where feasible, energy efficient municipal lighting in Landmark Village. Annual energy costs associated with municipal lighting are lowered by 16 to 40 percent via the use of energy efficient lighting. Although the exact parameters and feasibility of the program have not yet been determined, it is estimated that the installation of energy efficient municipal lighting may result in a reduction of up to 58 tonnes of CO_2e per year.

Smart Meter Program. The project applicant is committed to working with Southern California Edison and Southern California Gas Company to assess the feasibility of installing smart meters at residential units in Landmark Village. Although the GHG emissions reductions achieved via the implementation of a smart meter program are uncertain and there do not appear to be any authoritative references that outline the overall energy savings from smart meters, numerous studies suggest that smart meters can reduce peak demand by 10 to 20 percent and energy costs from appliance use by approximately 10 percent. Assuming that every residential unit realized a 10 decrease in overall energy use, such a program may result in a reduction of nearly 400 tonnes of CO_2e per year.[73]

At present time, the feasibility of these two programs is uncertain. However, the project applicant is committed to evaluating the two programs discussed above in conjunction with the County, Southern California Edison, and Southern California Gas Company.

e. Consistency With Recommended Mitigation Programs

The proposed project also is compatible with many of the mitigation measures recommended by the California Attorney General's Office and the Climate Action Team. **Table 4.23-6, Compatibility with the California Attorney General GHG Emission Reduction Strategies**, and **Table 4.23-7**, **Compatibility with Climate Action Team GHG Emission Reduction Strategies**, identify the recommended mitigation measures and assess whether the proposed project is compatible with those measures or if the measures are applicable.

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73 Smart meters are designed to transmit usage directly to the utility provider, thereby eliminating the need for door-to-door meter reading. The elimination of door-to-door meter reading would reduce overall GHG emissions further, by eliminating vehicle emissions.

Table 4.23-6
Compatibility with California Attorney General GHG Emission Reduction Strategies

Measure	Compatibility of Project
Energy Efficiency	
Design buildings to be energy efficient. Site buildings to take advantage of shade, prevailing winds, landscaping and sun screens to reduce energy use.	*Compatible:* All residential and nonresidential land uses included in the proposed project would be at least 15 percent more energy efficient than Title 24 requires, and, where specified, may rely on renewable energy sources to satisfy the project's energy demands. (See Mitigation Measures LV 4.23-1 through LV 4.23-4.) The project applicant would use its best efforts to site buildings to take advantage of shade, prevailing wind, *etc.* to reduce energy use. Therefore, the proposed project would further implementation of this reduction strategy.
Install efficient lighting and lighting control systems. Use daylight as an integral part of lighting systems in buildings.	*Compatible:* The project applicant is committed to working with the County of Los Angeles and Southern California Edison to install, where feasible, energy efficient municipal lighting in Landmark Village. Although the exact parameters and feasibility of the program have not been determined, it is estimated that the installation of energy efficient municipal lighting may result in a reduction of the overall emissions by 0.2 percent (up to 58 tonnes). Therefore, the proposed project would further implementation of this reduction strategy.
Install light colored "cool" roofs, cool pavements, and strategically placed shade trees.	*Compatible:* The Landmark Village tract map site currently is cultivated with row crops. In building out a project with Landmark Village's land use and design parameters, it is likely that approximately 2,500 new trees will be planted to revegetate the project site; the planting of these trees would occur concurrently with build-out of the proposed project. The inclusion of new vegetation would increase shade throughout the project site. Therefore, the proposed project would further implementation of this reduction strategy.
Provide information on energy management services for large energy users.	*Not Applicable:* The land uses that would be built on the Landmark Village project site would not be considered large energy users (e.g., electricity providing utility; industrial-related business; etc.).

Measure	Compatibility of Project
Energy Efficiency (continued)	
Install energy efficient heating and cooling systems, appliances and equipment, and control systems.	*Compatible:* As discussed throughout this section, the proposed project's residential and nonresidential land uses would be at least 15 percent more efficient than required by Title 24. (See Mitigation Measures LV 4.23-1 and 4.23-2.) Further, the applicant is committed to working with Southern California Edison and Southern California Gas Company to assess the feasibility of installing smart meters at residential units located throughout Landmark Village. Although the GHG emissions reductions achieved via the implementation of a smart meter program are uncertain, such a program may result in a reduction of the overall emissions by up to 366 tonnes. Therefore, the proposed project would further implementation of this reduction strategy.
Install light emitting diodes (LEDs) for traffic, street, and other outdoor lighting.	*Compatible:* The project applicant is committed to working with the County of Los Angeles and Southern California Edison to install, where feasible, energy efficient municipal lighting throughout the Landmark Village project site. Therefore, the proposed project would further implementation of this reduction strategy.
Limit the hours of operation of outdoor lighting.	*Not Applicable:* The project applicant has little to no control over the hours of operation of outdoor lighting at the residential and nonresidential development that would be built on the project site.
Use solar heating, automatic covers, and efficient pumps and motors for pools and spas.	*Compatible:* The project applicant is committed to using solar water heating for each of the pools located at the four recreation centers that would be built on the Landmark Village project site. (See Mitigation Measure LV 4.23-6.) Therefore, the proposed project would further implementation of this reduction strategy.
Provide education on energy efficiency.	*Compatible*: The project applicant is committed to providing the future property owners of land uses built on the project site with energy efficiency literature. In addition, as noted above, the applicant is committed to working with Southern California Edison and Southern California Gas Company to assess the feasibility of installing smart meters at residential units, which help educate residents about their energy consumption. It also should be observed that Southern California Edison has established an energy efficiency education program in order to ensure that its energy users are informed of existing opportunities to decrease their overall demand for energy. Moreover, in September 2008, the US EPA launched a new online tool – Energy Star & Work, to provide individuals with tips and information on how to save energy and protect the environment in the workplace. Therefore, the proposed project would further implementation of this reduction strategy.

Measure	Compatibility of Project
Renewable Energy	
Install solar and wind power systems, solar and tankless hot water heaters, and energy-efficient heating ventilation and air conditioning. Educate consumers about existing incentives.	*Compatible:* The project applicant may use renewable electricity, equivalent to 2-kilowatt photovoltaic (i.e., solar) power systems, when undertaking the design and construction of all single-family detached residential units that would be built on the Landmark Village project site. (See Mitigation Measure LV 4.23-3.) In addition, renewable electricity may be utilized for some of the nonresidential development facilitated by project approval. (See Mitigation Measure LV 4.23-4.) Therefore, the proposed project would further implementation of this reduction strategy.
Use solar panels on carports and over parking areas.	*Compatible:* As discussed above, the project applicant may use renewable electricity, equivalent to 2-kilowatt photovoltaic (i.e., solar) power systems, when undertaking the design and construction of all single-family detached residential units that would be built on the Landmark Village project site. (See Mitigation Measure LV 4.23-3.) In addition, renewable electricity may be utilized for some of the nonresidential development facilitated by project approval. (See Mitigation Measure LV 4.23-4.) Therefore, the proposed project would further implementation of this reduction strategy.
Use combined heat and power in appropriate applications.	*Not Applicable*: Cogeneration (also known as combined heat and power) is the use of a heat engine or power station to simultaneously generate electricity and heat. The land uses that would be built at the Landmark Village project site do not lend themselves to cogeneration.
Water Conservation and Efficiency [1]	
Create water-efficient landscapes.	*Compatible:* The applicant is committed to using native (or non-native/non-invasive) and drought-tolerant vegetation when revegetating the project site. Therefore, the proposed project would further implementation of this reduction strategy.
Install water-efficient irrigation systems and devices, such as soil moisture-based irrigation controls.	*Compatible:* The proposed project would rely on evapotranspiration (i.e., weather-sensitive sprinklers) to reduce water demand and runoff. Therefore, the proposed project would further implementation of this reduction strategy.
Use reclaimed water for landscape irrigation in new developments and on public property. Install the infrastructure to deliver and use reclaimed water.	*Compatible:* The proposed project would use reclaimed/recycled water for landscape irrigation, and the infrastructure needed to deliver and use this water would be provided as part of the Newhall Ranch Water Reclamation Plant. Therefore, the proposed project would further implementation of this reduction strategy.

Measure	Compatibility of Project
Water Conservation and Efficiency (continued)[1]	
Design buildings to be water-efficient. Install water-efficient fixtures and appliances.	*Compatible:* The proposed project's design features would comply with all applicable state, regional, and local regulations regarding water efficiency. In addition, the proposed project's wastewater would be routed through the Newhall Ranch Water Reclamation Plant (WRP), and reused throughout the project site for irrigation purposes. This project design feature and water treatment approach ensures the efficient use of water. Therefore, the proposed project would further implementation of this reduction strategy.
Use graywater.	*Compatible:* The proposed project would use reclaimed water for landscape irrigation. Therefore, the proposed project would be compatible with this type of reduction strategy by minimizing the energy and water resources required to meet the demands of the proposed project's residents and occupants at buildout.
Restrict watering methods (e.g., prohibit systems that apply water to non-vegetated surfaces) and control runoff.	*Compatible:* While the watering methods of the users and occupants of Landmark Village are beyond the control of the applicant, the applicant is committed to curtailing urban runoff and maximizing groundwater recharge. In order to achieve this goal, the applicant would install native landscape areas and non-structural water quality treatment improvements. The project design would include minimizing impervious surfaces through clustering development and using bioretention, extended detention, and other vegetated treatment control Best Management Practices (BMPs) to disconnect impervious surfaces and reduce runoff volumes through evapotranspiration and infiltration. (Please see **Section 4.3**, Water Quality, of this Recirculated EIR for additional information.) Therefore, the proposed project would further implementation of this reduction strategy.
Restrict the use of water for cleaning outdoor surfaces and vehicles.	*Compatible:* The project applicant has little to no control over the future occupants' use of water for cleaning outdoor surfaces and vehicles. Nonetheless, the project applicant has committed to implementing an educational program, targeted at both residents and commercial businesses, regarding services that could affect water use and quality. The site design for Landmark Village also would include the provision of a car wash pad connected to sanitary sewer in the multi-family residential areas. (Please see **Section 4.3**, Water Quality, of the Recirculated EIR for additional information.) Therefore, the proposed project would further implementation of this reduction strategy.

Measure	Compatibility of Project
Water Conservation and Efficiency (continued)[1]	
Implement low-impact development practices that maintain the existing hydrologic character of the site to manage stormwater and protect the environment.	*Compatible:* The primary goals of low impact/site design BMPs are to maintain a landscape functionally equivalent to predevelopment hydrologic conditions and to minimize the generation of pollutants of concern. The Los Angeles County Municipal Stormwater Permit and the State Board's Construction Storm Water General Permit regulate construction Best Management Practices for private and public construction in Los Angeles County, and Newhall Ranch is featured as a "low impact development." Please also see **Section 4.3**, Water Quality, of the Recirculated EIR, which discusses various low-impact project design features of Landmark Village (e.g., clustered development; reserved open space; minimizing impervious areas through landscaping; buffer areas between the project site and the Santa Clara River Corridor; etc.). Therefore, the proposed project would further implementation of this reduction strategy.
Devise a comprehensive water conservation strategy appropriate for the project and location.	*Compatible:* As discussed in **Section 4.10**, Water Service, of the Recirculated EIR, potable water demand would be met by the Valencia Water Company through the use of the project applicant's rights to groundwater from the Alluvial aquifer, which is presently used by the applicant for agricultural irrigation. Non-potable water demand would be met through the use of recycled (reclaimed) water from the initial phase of the Newhall Ranch WRP, with build-out of the WRP occurring over time as demand for treatment increases with implementation of the Newhall Ranch Specific Plan. Alternatively, if the Newhall Ranch WRP is not operating at the time of project occupancy, the non-potable water demand would be met through the use of recycled water from the existing Valencia WRP, located upstream of the Landmark Village project site. In addition, the Valencia Water Company is a member of the California Urban Water Conservation Council ("CUWCC"). (See http://www.cuwcc.org/home.html.) The primary mission of the CUWCC is to increase efficient water use statewide through partnerships among urban water agencies, public interest organizations, and private entities. Accordingly, the CUWCC has committed to implementing numerous BMPs to improve water efficiency. These BMPs address residential surveys; retrofits; audits; metering; landscaping; clothes washers; public information; school education; wholesaler incentives; rates; waste prohibitions; etc. (See http://www.cuwcc.com/mbmp.lasso.) In summary, the proposed project would further implementation of this reduction strategy.

Measure	Compatibility of Project
Water Conservation and Efficiency (continued)[1]	
Provide education about water conservation and available programs and incentives.	*Compatible:* Valencia Water Company, which would provide water supply services to the Landmark Village project site, operates a water conservation management program. Valencia Water Company's contractor, WaterWise Consulting, at no cost, visits residences, inspects the residence for leaks, installs water saving devices, and shares conservation information with the occupant. (See http://www.valenciawater.com /conservation/index.asp.) Therefore, the proposed project would further implementation of this reduction strategy.
Solid Waste Measures	
Reuse and recycle construction and demolition waste (including, but not limited to, soil, vegetation, concrete, lumber, metal, and cardboard).	*Compatible*: As discussed in Section 4.12, Solid Waste Services, of the Landmark Village Draft EIR, the project applicant would comply with all state- and locally mandated waste diversion and recycling requirements. Therefore, the proposed project would further implementation of this reduction strategy.
Provide interior and exterior storage areas for recyclables and green waste and adequate recycling containers located in public areas.	*Compatible:* Consistent with Specific Plan mitigation measures 4.15-1 and 4.15-2, Landmark Village would meet the requirements of all applicable solid waste diversion, storage, and disposable regulations, which includes providing recycling areas that are conveniently located, secured and protected against environmental conditions, clearly marked, and adequate in capacity, number and distribution. Therefore, the proposed project would further implementation of this reduction strategy.
Recover by-product methane to generate electricity.	*Not Applicable:* The proposed land uses would not generate methane that could be used for cogeneration purposes.
Provide education and publicity about reducing waste and available recycling services.	*Compatible:* Consistent with Specific Plan mitigation measure 4.15-3, the first purchaser of each residential unit within Landmark Village would be provided with educational or instructional materials addressing recyclable materials. In addition, the local waste management provider (Burrtec Waste Industries, Inc.) would distribute and/or have available online informational materials regarding reducing waste and its recycling services during the ordinary course of business. (See http://www.burrtec.com.) Therefore, the proposed project would further implementation of this reduction strategy.

Measure	Compatibility of Project
Land Use Measures	
Include mixed-use, infill, and higher density in development projects to support the reduction of vehicle trips, promote alternatives to individual vehicle travel, and promote efficient delivery of goods and services.	*Compatible:* The Landmark Village project would include a broad range of housing types and nonresidential uses. Within the project site, many residents will be located within walking distances to commercial and mixed-use areas, schools, community parks, and trails. In addition, as Landmark Village is adjacent to the Valencia Commerce Center, bike and pedestrian trails within Newhall Ranch would connect to trails within the Valencia Commerce Center. Therefore, the proposed project would further implementation of this reduction strategy.
Educate the public about the benefits of well-designed, higher density development.	*Compatible:* The project applicant has prepared a community outreach, informational document to educate the public about the advantages of residing within a well-designed community, such as the proposed project—*Sustainability in Action: Landmark Village* (2007). (This document is located in **Appendix 4.23**.) Therefore, the proposed project would further implementation of this reduction strategy.
Incorporate public transit into project design.	*Compatible:* Although not a "transit priority project," as defined by SB 375, the land use and circulation plans for Landmark Village have been designed to minimize car trips and reduce GHG emissions. Accordingly, mass transit would be conveniently located through the development of a new transit station, a park-and-ride lot, and bus stops. In addition, an approximate 5-mile right-of-way for a potential Metrolink extension also is included in the circulation plan. Trails and bike paths leading to close-to-home jobs, neighborhood serving retail, and the elementary school would encourage residents to enjoy the walkability of the community. Finally, the project applicant has committed to funding $300 million in roadway improvements in the Santa Clarita Valley for transportation mobility. Therefore, the proposed project would further implementation of this reduction strategy.

Measure	Compatibility of Project
Land Use Measures (continued)	
Preserve and create open space and parks. Preserve existing trees, and plan replacement trees at a set ratio.	*Compatible:* In building out a development of Landmark Village's parameters, it is likely that approximately 2,500 trees would be planted to vegetate the project site; in addition, other landscaping would be implemented throughout the project site. As discussed in Section 4.16, Parks and Recreation, of the Landmark Village Draft EIR, the Landmark Village project includes a 9.74-net-acre Community Park, 3.13 acres of the Specific Plan's Regional River Trail, and 4.10 acres of community trails. Moreover, over 50 percent of the Newhall Ranch Specific Plan (of which Landmark Village is a part of) would be preserved as open space: the High County Special Management Area is over 4,200 acres; the Santa Clara River Corridor is over 1,000 acres; open space areas within the individual areas would total about 1,100 acres; the Salt Creek corridor, which is located on the western edge of Newhall Ranch, is over 1,500 acres. In total, this open space amounts to 7,800 acres. Therefore, the proposed project would further implementation of this reduction strategy.
Develop "brownfields" and other underused or defunct properties near existing public transportation and jobs.	*Not Applicable:* The project site is not considered a "brownfield," and presently is characterized by agricultural uses.
Include pedestrian and bicycle-only streets and plazas within developments. Create travel routes that ensure that destinations may be reached conveniently by public transportation, bicycling or walking.	*Compatible:* Nearly 60 percent of the residential units that would be built out in Newhall Ranch would be located within walking distance of village or commercial centers. Newhall Ranch would include paseos and trails, including the Santa Clara River Regional Trail, which would facilitate pedestrian access. Therefore, the proposed project would further implementation of this reduction strategy.
Transportation and Motor Vehicles	
Limit idling time for commercial vehicles, including delivery and construction vehicles.	*Compatible:* Idling limits are in place by regulations subject to statewide application. The project applicant would require all contractors to comply with existing, applicable environment regulations, such as the anti-idling regulations. Therefore, the proposed project would neither hinder nor impede implementation of the anti-idling regulations.
Use low or zero-emission vehicles, including construction vehicles.	*Compatible:* As provided in Specific Plan's air quality mitigation measures, TLEV, ULEV, LEV, and ZEV would be operated in connection with the commercial and business park land uses. (Please note that Landmark Village would not include business park land uses.) Therefore, the proposed project would further implementation of this reduction strategy.

Measure	Compatibility of Project
Transportation and Motor Vehicles (continued)	
Promote ride-sharing programs (e.g., by designating a certain percentage of parking spaces for ride sharing vehicles, designating adequate passenger load and unloading and waiting areas for ride sharing vehicles, and providing a web site or message board for coordinating rides).	*Compatible:* As previously noted, Landmark Village would include a park-and-ride lot. In addition, various mitigation measures adopted in connection with the Newhall Ranch Specific Plan would accomplish the goals identified in the recommended reduction strategy by facilitating and providing incentives for ride-sharing efforts. The Los Angeles County Metropolitan Transportation Authority also has over 100 conveniently located park-and-ride locations countywide, and sponsors a subsidized metro vanpool program. (See http://www.metro.net riding_metro/commute_services/vanpool/default.htm.) Therefore, the proposed project would further implementation of this reduction strategy.
Create car sharing programs. Accommodations for such programs include providing parking spaces for the car share vehicles at convenient locations accessible by public transportation.	*Compatible:* The Los Angeles County Metropolitan Transportation Authority's website contains information regarding car sharing. (See http://www.metro.net/riding_metro/commuteservices/commuter_carsharing.htm.) The proposed project would neither impede nor hinder implementation of this reduction strategy.
Create local "light vehicle" networks, such as neighborhood electric vehicle (NEV) systems.	*Compatible:* Market forces will drive the installation and use of "light vehicle" networks, and the project applicant has little to no control over whether future project users and occupants choose to utilize such networks. Nonetheless, the design of Landmark Village, which is structured to provide optimal walkability via the paseos and trails, serve to accomplish the same primary objective as this reduction strategy (i.e., reduction in reliance on single occupancy vehicles as the primary means of travel). Therefore, the proposed project would neither hinder nor impede implementation of this reduction strategy.
Provide the necessary facilities and infrastructure to encourage the use of low or zero-emission vehicles (e.g., electric vehicle charging facilities and conveniently located alternative fueling stations).	*Compatible:* Market forces will drive the installation and use of "light vehicle" networks, and the project applicant has little to no control over whether future project users and occupants choose to utilize such networks. Moreover, as previously mentioned, Landmark Village has been designed to be a walkable community, thereby reducing the need to operate or rely on motor vehicle transportation to reach many essential services (e.g., schools; food and gas; parks; etc.). The proposed project would neither hinder nor impede implementation of this reduction strategy.

Measure	Compatibility of Project
Transportation and Motor Vehicles (continued)	
Increase the cost of driving and parking private vehicles by, e.g., imposing tolls and parking fees.	*Compatible:* Mitigation measures adopted in connection with the Newhall Ranch Specific Plan would provide preferential parking for carpools and vanpools, and implement pricing structures for parking to favor more efficient group travel. Moreover, market forces (e.g., oil prices) are the primary driver of increased driving costs. In light of these ever-increasing costs, Landmark Village would encourage and facilitate use of numerous types of alternative transportation via the community's walkability and extensive trail network, the park-and-ride lot, bus stops, the right-of-way for a potential Metrolink extension, etc. Therefore, the proposed project would further implementation of this reduction strategy.
Build or fund a transportation center where various public transportation modes intersect.	*Compatible:* As previously mentioned, the Newhall Ranch Specific Plan would include numerous modes of public transportation (e.g., park-and-ride lot; bus stops; the regional trail network; right-of-way for Metrolink extension; paseos; *etc*.) in close proximity to one another to accommodate the future residents, visitors, and occupants of the Specific Plan land uses. Therefore, the proposed project would further implementation of this reduction strategy.
Provide shuttle service to public transit.	*Compatible:* Consistent with the mitigation measures adopted in connection with the Newhall Ranch Specific Plan Program EIR, there would be a variety of shuttle services to and from residential, commercial, and business park land uses throughout the Specific Plan site. The City of Santa Clarita also provides demand-responsive service using a fleet of 16 ADA-compliant paratransit vans and small buses; and curb-to-curb services are available to the elderly, disabled, and general public every day of the week. (See http://www.santa-clarita.com/cityhall/admin/Transit/AAC.asp.) Therefore, the proposed project would further implementation of this reduction strategy.
Provide public transit incentives such as free or low-cost monthly transit passes.	*Not Applicable:* Public transit incentives typically are provided by education facilities and businesses. The project applicant has little to no control over whether individual business owners elect to incentive the use of public transit via free or low-cost passes.
Incorporate bicycle lanes and routes into street systems, new subdivision, and large developments.	*Compatible:* Landmark Village would incorporate bike lanes and routes into the street system. The Specific Plan's regional river trails allow for bicycle use and reduces the number of times that bicycles would interact with motor vehicles. (The regional river trails span from the Los Angeles County line into the City of Santa Clarita.) Therefore, the proposed project would further implementation of this reduction strategy.

Measure	Compatibility of Project
Transportation and Motor Vehicles (continued)	
Incorporate bicycle-friendly intersections into street design.	*Compatible:* As discussed above, Landmark Village would contain and connect to an extensive network of bike trails. The circulation plan has incorporated these bike trails and paths into the street design in order to ensure that these routes are user-friendly. Therefore, the proposed project would further implementation of this reduction strategy.
For commercial projects, provide adequate bicycle parking near building entrances to promote cyclist safety, security, and convenience. For large employers, provide facilities that encourage bicycle community, including, e.g., locked bicycle storage, or covered or indoor bicycle parking.	*Compatible:* The project applicant has little or no control over whether future commercial businesses on the Landmark Village project site will elect to provide bicycle parking near buildings. However, as discussed above, market forces will drive the provision of this bicycle parking. In addition, adopted Specific Plan air quality mitigation measures require that future commercial and business park uses be complemented by any two of the following: bicycle facility improvements; bicycle parking facilities; and/or showers for bicycling employees' use. Therefore, the proposed project would further implementation of this reduction strategy.
Create bicycle lanes and walking paths directed to the location of schools, parks and other destination points.	*Compatible:* Landmark Village and Newhall Ranch generally would include an extensive network of paseos and trails that provide access to schools, commercial centers, community parks, etc. Therefore, the proposed project would further implementation of this reduction strategy.
Work with the school district to restore or expand school bus services.	*Compatible:* As discussed in Section 4.15, Education, of the Landmark Village Draft EIR, the Castaic Union School District (Castaic District) and the William S. Hart Union High School District (Hart District) currently provide public elementary, junior high/middle school, and senior high school education in the Landmark Village project area. Both the Castaic District and Hart District provide bus services, with the latter's services derived from the City of Santa Clarita Transit. (See http://www.castaic.k12.ca.us/; http://www.santa-clarita.com/cityhall/admin/transit/school.asp.) The proposed project also includes construction of the Landmark Village Elementary School, which would be designed for a capacity of 837 students and centrally located within Landmark Village. Therefore, elementary school students may not require busing due to the walkability of Landmark Village and the proximity of this elementary school. In summary, the proposed project would further implementation of this reduction strategy.
Institute a telecommute program. Provide information, training, and incentives to encourage participation. Provide incentives for equipment purchases to allow high-quality teleconferences.	*Not Applicable:* This is beyond the scope of the proposed project, and beyond the control of the applicant.

Measure	Compatibility of Project
Transportation and Motor Vehicles (continued)	
Provide information on all options for individuals and businesses to reduce transportation-related emissions. Provide education and information about public transportation.	*Compatible:* Both the Los Angeles County Metropolitan Transportation Authority and City of Santa Clarita Transit provide extensive transportation services in the vicinity of the Landmark Village site. Information on these services would be readily available, via the agencies' websites, to all future residents and occupants of Landmark Village. In addition, consistent with Specific Plan Mitigation Measure 4.10-14, the sellers of new residential units would be required to distribute brochures and other relevant information published by SCAQMD (or a similar organization) to new homeowners regarding the importance of reducing vehicle miles traveled, as well as information on local opportunities for public transit and ridesharing. Finally, pursuant to mitigation measure LV 4.9-7, kiosks containing transit information shall be constructed by the project applicant adjacent to selected future bus stops prior to initiation of bus service. Therefore, the proposed project would further implementation of this reduction strategy.

Source: Office of the California Attorney General, Global Warming Measures, updated February 14, 2008.

[1] The Santa Clarita Valley water suppliers have joined together to develop a plan to ensure the efficient use of water in Santa Clarita Valley. In that regard, the water suppliers are working towards adoption of the *Santa Clarita Valley Water Use Efficiency Strategic Plan* (September 2008), the goal of which is to achieve a long-term reduction in water demand of at least 10 percent over the next twenty years. (This document is available for public inspection and review at Los Angeles County Department of Regional Planning, 320 West Temple Street, Los Angeles, California 90012, and is incorporated by reference.)

Table 4.23-7
Compatibility with Climate Action Team GHG Emission Reduction Strategies

GHG Emission Reduction Strategies	Compatibility of Project
California Air Resources Board (ARB)	
Vehicle Climate Change Standards: AB 1493 required CARB to develop and adopt regulations that achieve the maximum feasible and cost-effective reduction of greenhouse gas emissions from passenger vehicles and light-duty trucks. Regulations were adopted by CARB in September 2004.	*Compatible:* California recently received the required waiver under the Clean Air Act to enable implementation of the AB 1493 regulations. GHG emission reductions are expected to occur via action undertaken by automobile manufacturers and any enforcement programs implemented by CARB. The proposed project would neither hinder nor impede implementation of the AB 1493 regulations.
Diesel Anti-Idling: In July 2004, CARB adopted a measure to limit diesel-fueled commercial motor vehicle idling. Additionally, in July 2007, CARB adopted requirements applicable to off-road diesel equipment, including limits on idling times.	*Compatible:* The diesel anti-idling regulations are subject to statewide application. The project applicant would require all contractors to comply with existing, applicable environment regulations, such as the anti-idling regulations. Therefore, the proposed project would neither hinder nor impede implementation of the anti-idling regulations.
Hydrofluorocarbon Reduction: (1) Ban retail sale of HFCs in small cans; (2) Require that only low GWP refrigerants be used in new vehicular systems; (3) Adopt specifications for new commercial refrigeration; (4) Add refrigerant leak-tightness to the pass criteria for vehicular inspection and maintenance programs; (5) and Enforce the federal ban on HFCs.	*Not Applicable:* These reduction measures are beyond the scope of the proposed project and the control of the project applicant.
Transportation Refrigeration Units (TRUs): These measures would reduce emissions from TRUs, increase off-road electrification, and increase use of shore side/port electrification.	*Compatible:* The project applicant does not anticipate that any notable use of TRUs would occur in connection with the proposed project. Therefore, the proposed project would neither hinder nor impede implementation of measures designed to reduce emissions from TRUs.
Heavy-Duty Vehicle Emission Reduction Measures: Increased efficiency in the design of heavy-duty vehicles and an education program for the heavy-duty vehicle sector.	*Compatible:* These reduction measures would be enforced by CARB and subject to statewide application. The project applicant would require all contractors to comply with existing, applicable environment regulations, such as the heavy-duty vehicle emissions reduction measures. Therefore, the proposed project would neither hinder nor impede implementation of these reduction measures.
Achieve 50% Statewide Recycling Goal: This strategy requires achievement of California's 50 percent waste diversion mandate, as established by the Integrated Waste Management act of 1989. Meeting the waste diversion mandate would reduce emissions associated with energy-intensive material extraction and production, as well as methane emission from landfills.	*Compatible:* As discussed in Section 4.12, Solid Waste Services, of the Landmark Village Draft EIR, the project applicant would comply with state- and locally mandated waste diversion and recycling requirements. Therefore, the proposed project would further implementation of this reduction strategy.

GHG Emission Reduction Strategies	Compatibility of Project
Department of Forestry	
Urban Forestry: Expand local urban forestry programs and achieve a statewide goal of planting 5 million trees in urban areas by 2020.	*Compatible:* In building out a development of Landmark Village's parameters, it is likely that approximately 2,500 trees would be planted to vegetate the project site; in addition, other landscaping would be implemented throughout the project site. In addition, as discussed in Section 4.16, of the Landmark Village Draft EIR, Parks and Recreation, the Landmark Village project includes a 9.74-net-acre Community Park, 3.13 acres of the Specific Plan's Regional River Trail, and 4.10 acres of community trails. Moreover, over 50 percent of the Newhall Ranch Specific Plan (of which Landmark Village is a part of) would be preserved as open space: the High County Special Management Area is over 4,200 acres; the Santa Clara River Corridor is over 1,000 acres; open space areas within the individual areas would total about 1,100 acres; the Salt Creek corridor, which is located on the western edge of Newhall Ranch, is over 1,500 acres. In total, this open space amounts to 7,800 acres. Therefore, the proposed project would further implementation of this reduction strategy.
Department of Water Resources	
Water Use Efficiency: Approximately 19 percent of all electricity, 30 percent of all natural gas, and 88 million gallons of diesel are used to convey, treat, distribute and use water and wastewater. Increasing the efficiency of water transport and reducing water use would reduce greenhouse gas emissions.	*Compatible:* The proposed project would rely on less energy-intensive water resources than those typically used throughout California, due to the availability of local groundwater. In addition, to curtail urban runoff and maximize groundwater recharge, Newhall Ranch would utilize open/soft bottom channels, increased native landscape areas, and non-structural water quality treatment improvements. Finally, Newhall Ranch would be vegetated with native (or non-native/non-invasive) and drought-tolerant plants, use recycled water for irrigation, and evapotranspiration controllers to reduce potable water demand and runoff. Therefore, the proposed project would further implementation of this reduction strategy.
California Energy Commission (CEC)	
Building Energy Efficiency Standards in Place and in Progress: Public Resources Code section 25402 authorizes the CEC to adopt and periodically update its building energy efficiency standards that apply to newly constructed buildings and additions and alterations to existing buildings.	*Compatible:* As discussed throughout this section, all new residential and nonresidential development on the Landmark Village site would be at least 15 percent more energy efficient than the existing standards adopted by the CEC in Title 24. (See Mitigation Measures LV 4.23-1 and 4.23-2.) On April 23, 2008, the CEC adopted the 2008 standards. If the building permit applications for the proposed project are filed after July 1, 2009 (the effective implementation date for the 2008 standards), the development on the project site would comply with Title 24 (2008), as required by law. Therefore, the proposed project would neither hinder nor impede implementation of this reduction strategy.

GHG Emission Reduction Strategies	Compatibility of Project
California Energy Commission (CEC) (continued)	
Appliance Energy Efficiency Standards in Place and in Progress: Public Resources Code section 25402 authorizes the CEC to adopt and periodically update its appliance energy efficiency standards that apply to devices and equipment using energy that are sold or offered for sale in California.	*Compatible:* Appliances installed throughout Landmark Village would comply with the applicable energy efficiency standards, to the extent that the selection of appliances is within the control of the project applicant (and not the control of the future users and occupants of Landmark Village). Therefore, the proposed project would neither hinder nor impede implementation of this reduction strategy.
Building, Transportation, and Housing Agency	
Smart Land Use and Intelligent Transportation Systems (ITS): Smart land use strategies encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors.	*Compatible:* The proposed project is a mixed-use planned community that employs sustainable development principles. Build-out within Newhall Ranch and Valencia would result in the creation of approximately 100,000 jobs in the Santa Clarita Valley, and thereby increase the jobs-housing balance. In addition, nearly 60 percent of the residential units within Newhall Ranch would be located within walking distance of village or commercial centers. Further, Newhall Ranch would be part of the Santa Clarita Transit system, include extensive open space and recreation areas (including over 50 miles of trails), and preserve sensitive resources areas. Therefore, the proposed project would further implementation of this reduction strategy.
Measures to Improve Transportation Energy Efficiency: Builds on current efforts to provide a framework for expanded and new initiatives including incentives, tools, and information that advance cleaner transportation and reduce climate change emissions.	*Compatible:* The proposed project incorporates "transit friendly" project design features. For example, Landmark Village would include a park-and-ride lot and bus stops. In addition, the applicant is committed to providing its fair share for roadway improvements in the Santa Clarita Valley. Therefore, the proposed project would further implementation of this reduction strategy.
State Consumer Services Agency	
Green Buildings Initiative: Green Building Executive Order, S-20-04 (CA 2004), sets a goal of reducing energy use in public and private buildings by 20 percent by the year 2015, compared with 2003 levels.	*Compatible:* The project applicant would comply with the County of Los Angeles' green building policies and ordinances, and any other state-mandated green building initiatives, as applicable and as required by law. In addition, the proposed project would be at least 15 percent more energy efficient than Title 24 currently requires and, where specified, may be supplemented by renewable energy resources. (See Mitigation Measures LV 4.23-1 through 4.23-4.) Therefore, the proposed project would further implementation of this reduction strategy.

Source: Summarized from Chapter 5 of the Climate Action Team Report to Governor Schwarzenegger and the Legislature (March 2006).

8. CUMULATIVE IMPACTS

Under CEQA, the analysis of cumulative impacts is necessarily guided by standards of practicality, feasibility, and reasonableness. (*State CEQA Guidelines*, section 15151.) And, the question to be considered when undertaking the analysis is whether the project's incremental effects are "cumulatively considerable" (*State CEQA Guidelines*, section 15130, subd. (a)), which means whether the project's incremental effects are significant when viewed in connection with the effects of past, present, and probably future projects. (*State CEQA Guidelines*, section 15065, subd. (a)(3).) Here, the specific question is whether Landmark Village's GHG emissions are cumulatively considerable in conjunction with GHG emissions generated by other projects, in that the emissions would impede compliance with the GHG emissions reduction goals mandated by AB 32.

First, as discussed in this section, above, emissions must be reduced at least 29 percent below the CARB 2020 NAT scenario for California to achieve the emission reduction mandates of AB 32. The proposed project's emissions would be at least 30 percent below the CARB 2020 NAT scenario and, therefore, project-level impacts would be less than significant. The proposed project would not result in any additional effect because the project's GHG emissions do not impede compliance with the GHG emissions reduction goals mandated by AB 32, as it is presently understood. As a result, the Landmark Village GHG emissions are not considered "cumulatively considerable" under CEQA.

In addition to incorporating the design features and mitigation measures necessary to facilitate the achievement of AB 32's goals at a statewide level, the Landmark Village project also would comply with any additional, applicable state-mandated requirements concerning GHGs and any local initiatives from Los Angeles County. Compliance with all such measures would further ensure that the Landmark Village project would not result in significant cumulatively considerable impacts on global climate changes.

9. CUMULATIVE MITIGATION MEASURES

Other than complying with the mitigation measures identified above, in connection with the approval of Landmark Village, no further mitigation is recommended or required. Nonetheless, it should be noted that as AB 32's mandate is brought to fruition, through the adoption of regulations and additional legislation, additional GHG reduction measures would be implemented, and Landmark Village, and the residents and businesses that occupy Landmark Village, would be subject to those reduction measures. Therefore, additional GHG emissions reductions are ensured and inevitable.

Section 15130, subdivision (c), of the *State CEQA Guidelines* acknowledges that "[w]ith some projects, the only feasible mitigation for cumulative impacts may involve the adoption of ordinances or regulations rather than the imposition of conditions on a project-by-project basis." Global climate change is this type

of issue, as the very causes and effects of global climate change are not simply determined on a local or regional scale. Therefore, given the uncertainties in identifying, let alone quantifying, the impact of any single project on global warming and climate change, and the efforts made to design the Landmark Village project with sustainable development principles in mind, any further mitigation is best accomplished through ARB regulations implementing the mandated reduction goals of AB 32.

10. SIGNIFICANT UNAVOIDABLE IMPACTS

a. Project-specific Impacts

With implementation of the project design features and mitigation measures recommended in this section, no significant unavoidable project-related GHG emissions would result from approval of the proposed Landmark Village project.

b. Cumulative Impacts

With implementation of the project design features and mitigation measures recommended in this section, no significant unavoidable cumulative impacts have been identified or are anticipated from the GHG emissions generated by the proposed Landmark Village project.